[COMMITTEE PRINT]

MEDICAL SCHOOL INQUIRY

STAFF REPORT

TO THE

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE

HOUSE OF REPRESENTATIVES

EIGHTY-FIFTH CONGRESS

FIRST SESSION

CONTAINING

BACKGROUND INFORMATION RELATING TO SCHOOLS OF MEDICINE, DENTISTRY, OSTEOPATHY AND PUBLIC HEALTH

[NOTE.—This report is printed for the use of the Committee on Interstate and Foreign Commerce. The report contains background information assembled by the professional staff of the committee and is not a committee report.]

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DEDICATION

This report is dedicated to the memory of the Honorable J. Percy Priest, the late chairman of the Committee on Interstate and Foreign Commerce. During his many years of service in the House of Representatives and on the Committee on Interstate and Foreign Commerce, he gave unstintingly of his time and energy to improve the health and welfare of the Nation through appropriate legislation. His humane outlook and consideration for his fellowmen will continue to inspire those who were fortunate enough to work with him.

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INTRODUCTION

On July 10, 1956, the Committee on Interstate and Foreign Commerce directed its professional staff "to gather all possible information bearing on the subject of Federal aid to medical schools and report to the committee early in the next Congress." The committee took this action during its consideration of a bill, S. 849, designed to provide assistance to certain non-Federal institutions for the construction of health research facilities. The committee decided that this bill should not be broadened to include matching grants for the construction of teaching facilities at medical schools, and that separate legislation to this effect would be considered by the committee during the 85th Congress. S. 849 was enacted into law (Public Law 835, 84th Cong.), and it does not provide for Federal assistance for the construction of medical school teaching facilities.

The attached report was prepared in response to the committee's directive by Mr. Kurt Borchardt, a member of the committee's professional staff, assisted by the United States Public Health Service and private organizations in these fields.

As with other staff reports of this nature, no member of the committee is committed to or limited by the selection of information contained in this report. Such information is offered solely as an aid to the Committee on Interstate and Foreign Commerce in its consideration of legislation in the field of health and medical education.

The committee wishes to express its appreciation to all Government departments and agencies and to private associations and individuals who cooperated with the professional staff in assembling this background information. The committee appreciates particularly the substantial contributions made in this connection by the Public Health Service, the Association of American Medical Colleges, the Council on Medical Education and Hospitals of the American Medical Association, the American Dental Association, the American Osteopathic Association, the American Association of Osteopathic Colleges, and the Association of Schools of Public Health.

OREN HARRIS,
Chairman, Committee on Interstate and Foreign Commerce.

MARCH 1, 1957.

INTRODUCTION

LETTER OF TRANSMITTAL

HOUSE OF REPRESENTATIVES,
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D. C., March 1, 1957.

Hon. OREN HARRIS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D. C.

DEAR MR. HARRIS: On July 10, 1956, the Committee on Interstate and Foreign Commerce directed its professional staff "to gather all possible information bearing on the subject of Federal aid to medical schools and report to the committee early in the next Congress."

Pursuant to this direction, a letter was sent on August 14, 1956, to interested Government departments and agencies and private associations, enclosing a topical outline and requesting the recipients to cooperate in assembling the desired background information by indicating—

(1) The topics included in the outline on which the recipient could furnish information; and

(2) Additional topics which should be included in the inquiry on which factual information could be readily secured.

At the invitation of the Committee on Financing Medical Education of the Association of American Medical Colleges, I met on September 21, 1956, in Washington, D. C., with the chairman and the members of that committee to discuss in greater detail ways in which the association might cooperate in furnishing background information on the financial needs of medical schools.

A second meeting was held with the Committee on Financing Medical Education on November 10, 1956, in Colorado Springs, Colo., preliminary to the annual meeting of the Association of American Medical Colleges, November 12–14, 1956. At this meeting it became apparent that additional specific information would be needed to present to the Committee on Interstate and Foreign Commerce an accurate picture of—

(1) The present facilities used for teaching purposes by American medical colleges; and

(2) Proposed plans for the construction of new medical school facilities to be used for teaching purposes during the period from 1957 to 1962.

Following the meeting with the Association of American Medical Colleges, I met on November 14 through 16 in Chicago with Edward L. Turner, M. D., and Walter S. Wiggins, M. D., secretary and associate secretary, respectively, of the Council on Medical Education and Hospitals of the American Medical Association, and Dean F. Smiley, M. D., secretary of the Association of American Medical Colleges, for the purpose of working out a questionnaire to secure the needed

information. The information collected on the basis of this questionnaire is included in this report.

The American Dental Association, the American Osteopathic Association, the American Association of Osteopathic Colleges, and the Association of Schools of Public Health were kept advised of the form and scope of the report on medical schools, and these organizations have submitted corresponding information for their own fields.

Other information contained in this report has been selected from various published sources or has been furnished upon request by various Government departments and agencies and private organizations.

The sources of the data contained in this report as well as supplementary information are contained in the appendix to this report. The numbers in the appendix correspond to the numbers of the questions in the report.

The undersigned is greatly indebted to all of the organizations, departments, and agencies that have cooperated in furnishing information, which in some instances entailed a considerable effort.

The information presented in the report is not intended to deal with all aspects of medical schools or medical education. The committee directed the staff to gather information bearing on Federal aid to medical schools. Therefore, the information contained in this report has been assembled to meet the test of relevance to possible forms of Federal aid to medical schools. Discussions of legislative proposals on this subject in earlier Congresses clearly indicated that the committee was concerned primarily with the undergraduate teaching function of medical schools.

The information presented in this report, therefore, is highly selective. In presenting information primarily with regard to the undergraduate teaching function of medical schools, the report deals only incidentally with two other important responsibilities discharged by medical schools—the conduct of medical research and the rendering of medical services. Also, the information necessarily stresses the quantitative aspects of medical school operations, and touches only in passing on the vitally important, but difficult to measure qualitative factors. No doubt numerous questions other than those set forth in the report could have been raised, particularly with regard to the subjective and qualitative aspects of medical schools and medical education. The difficulty of obtaining and presenting precise and factual answers to such questions precluded the inclusions of such questions in this report.

The special purpose for which this report has been prepared and the limited character of the information which has been presented must be borne in mind in attempting to evaluate the entire picture with regard to medical schools and medical education.

In recent years, several thoughtful students of medical education have voiced their concern over the present imbalance in financial support for the distinct, yet interrelated, functions discharged by medical schools. Because many public and private organizations have concerned themselves with one or another of these functions—or perhaps with only a special aspect of a particular function—funds made available to medical schools have largely been earmarked to support fragments of the medical schools' activities, instead of being con-

tributed for the operation of medical schools as a whole. Attention has been called, particularly, to the ready availability of funds for research, and the dearth of financial support for teaching. It has been pointed out that present patterns of support may supply ample funds for a single function or a particular aspect of such function, but may leave medical schools as a whole in an unhealthy or weakened condition; and it has been suggested that, beyond the need for additional and improved research and teaching facilities, an attempt at achieving a balance between specific and general aid for the operation of medical schools would be deserving of substantial efforts on the part of those concerned with the welfare of medical schools.

In some instances, opinions expressed by Government agencies, private organizations, or individuals on issues involving medical schools, medical education, physician requirements, etc., have been set forth. The recital of such opinions does not imply either their endorsement by the staff or the absence of opposing views. Such opinions are presented merely to record the fact that they reflect a particular attitude on the issues in question on the part of the agency, organization, or individual who expressed them.

In editing and arranging the information contained in this report, the undersigned has received valuable assistance from several staff members of the Public Health Service, and he wishes to express his appreciation, particularly, for the wholehearted and patient cooperation given him by Selma Mushkin, Eugene A. Confrey, Margaret D. West, and Ruth Bothwell. For assistance in verifying the data on medical schools contained in part 1 of this report, thanks are due to Maryland Y. Pennell and Kathryn I. Baker.

Respectfully submitted.

KURT BORCHARDT,
Legal Counsel.

HISTORY OF LEGISLATION TO AID MEDICAL SCHOOLS

Since the 81st Congress, a variety of bills have been introduced aimed at aiding medical schools and medical education. The bills have differed widely with regard to the scope and methods of aid. Among them have been proposals for the establishment of a Federal medical school; for aid to medical schools as well as schools of the other principal health professions; for operational subsidies; for aid in the construction of facilities—for medical or dental schools or for schools in other health professions as well, for teaching facilities only, or for teaching and research facilities; for scholarship aid for students in the principal health professions; and, finally, for the creation of commissions or other groups to study the question of appropriate Federal aid to medical schools and other schools training health personnel. Some of the bills have proposed similar types of assistance for schools of public health alone.

At different times various types of aid programs have received active consideration by the Congress.

During the 81st and 82d Congresses, the legislation considered provided for a 5-year emergency program of Federal aid to training in the principal health professions. The legislation included provisions for operational subsidies, scholarship aid, aid for the construction of facilities, and also included provisions for a study of possible long-term aid. This legislation was supported by the Truman administration and was passed without opposition by the Senate in 1949. Hearings were held in the House of Representatives by the Committee on Interstate and Foreign Commerce, which reported favorably legislation similar to the bill passed by the Senate. However, the Rules Committee failed to grant a rule. During the 82d Congress, the Senate Committee on Labor and Public Welfare again reported favorably a similar proposal. However, the Senate failed to pass this legislation, and it was not considered again in the House of Representatives.

Extensive hearings held during the 83d Congress on the major diseases of mankind, while not limited to the consideration of specific legislative proposals to aid medical schools, provided a broad background for committee consideration of such legislation in later Congresses.

During the 84th Congress, hearings were held both in the Senate and in the House of Representatives on bills much more limited in scope than those considered during the 81st and 82d Congresses. Some of the bills provided for aid in the construction of teaching facilities only, while others provided for the construction of research as well as teaching facilities. Some of the bills provided construction aid for medical schools only, while others also included dental schools, osteopathy, and schools of public health. Following the hearings, no

affirmative action was taken by either committee on bills providing for the construction of teaching facilities, but legislation to assist in the construction of research facilities was enacted into law.

During the 1st session of the 84th Congress, the Eisenhower administration opposed Federal construction grants for medical schools (on the ground that such a program should not be considered without careful prior study of the needs of higher education generally). In the second session, the administration actively sponsored construction-grant legislation for research and training of certain professional health personnel.

All the bills which were actively considered had the dual objective of assisting present operations and increasing enrollment, using, however, different methods to accomplish these objectives.

The bills considered during the 81st and 82d Congresses provided increased amounts of operational subsidy for additional students enrolled. Some of the bills considered during the 84th Congress provided for higher Federal construction grants in the case of new schools and schools willing to increase their enrollment by at least 5 percent. Other bills proposed priorities for construction projects which would permit increased enrollment.

PART ONE

MEDICAL SCHOOLS

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MEDICAL SCHOOLS

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SUMMARY—MEDICAL SCHOOLS

This summary of the medical school data collected in this report, as well as the corresponding summaries of the other parts, has been prepared for the convenience of the committee. A summarization of this information, even more than the original process of selection, unavoidably involves a question of judgment. The summaries do not, however, contain any evaluation of this information, nor do they offer any conclusions.

MEDICAL SCHOOLS—PRESENT AND FUTURE CAPACITY

The number of medical schools in the United States has been increasing gradually as has the number of medical students. Twenty-five years ago, there were 76 medical schools; now there are 83 schools, plus 2 schools which to date have only freshman classes. Twenty-five years ago there were approximately 22,000 medical students; now there are about 28,750 in the 83 schools. Of the 83 medical schools, 44 are privately owned, and 39 are publicly owned.

In the last 25 years, medical-school capacity grew both through the establishment of new schools (9), and the expansion of 2-year schools into full 4-year programs (5). Of these additional 4-year schools, 9 are publicly owned, and 5 are privately owned. During the last 25 years, publicly owned schools accounted for more than three-fourths of the increase in freshman places.

Since World War II, an increasing number of United States medical students has enrolled in foreign medical schools. Foreign medical schools provide training capacity for United States medical students equivalent to approximately 3 to 4 additional United States medical schools.

Of approximately 15,000 applicants for admission to United States medical schools, in 1955–56 about one-half were accepted. This filled the freshman classes of the schools to capacity.

A sharp increase in the number of medical-school applicants is expected during the next 10 years. The Association of American Medical Colleges has stated that while some existing schools with enlarged facilities might be able to accept additional students, increased capacity for the training of medical students must be brought about primarily by the establishment of new schools. In the absence of additional capacity—even beyond the expansion now underway—a substantially lower percentage of applicants is likely to gain admission to medical schools.

The interval between the decision to establish a new medical school and the graduation of its first class is 6 to 8 years. A new school planned in 1957, therefore, will not graduate medical students before 1963, or more likely 1965.

MEDICAL SCHOOLS—GRADUATES AND PHYSICIAN REQUIREMENTS

The number of graduates from United States medical schools has increased gradually during the last 25 years. Twenty-five years ago, 4,735 students graduated from United States medical schools; now there are 6,845 graduates per year.

The number of graduates from United States medical schools is expected to continue to increase gradually.

A constant and continuous demand for increased numbers of medical personnel has been acknowledged by the Association of American Medical Colleges and the Council on Medical Education and Hospitals of the American Medical Association. Actual physician shortages are reported in the field of psychiatry (particularly in State and county mental hospitals), by Federal, State, and local public health services, by the Veterans' Administration, by medical school faculties, and in rural areas.

In spite of the increased number of medical school graduates, the ratio of physicians for each 100,000 persons in the United States has remained about the same over the last several decades.

The ratio of 133 physicians for each 100,000 persons has been maintained in the past several years only through a steady increase in the number of foreign-trained physicians who have been added annually to the United States medical profession. The number of foreign-trained physicians (907) added to the United States medical profession in 1955 represented the equivalent of the number of graduates of approximately 10 United States medical schools.

In 1955–56, hospitals in the United States reported close to 8,000 alien physicians training and serving in approved internship and residency positions. Approximately 25 percent of these positions are filled by alien physicians. During the last 5 years, the number of alien physicians serving in approved internship and residency positions in United States hospitals has increased 280 percent, while over the same period the number of United States citizens serving in these positions in United States hospitals has decreased 1 percent. Some States report that 49 to 68 percent of hospital house staffs are alien physicians.

MEDICAL SCHOOLS AND MEDICAL STUDENTS—FINANCIAL ASPECTS

There has been a sharp increase in medical school operating budgets in recent years. In 1950–51, medical school operating budgets totaled approximately $67.5 million, while in 1956–57 they totaled $111 million.

During 1955, private and public health expenditures in the United States amounted to about $15.5 billion. During the same year, less than 1 percent of this amount was spent on the training of physicians.

Medical schools report wide variations in costs of teaching medical students, ranging from slightly over $1,000 per student to more than $15,000. Approximately one-half of the schools report costs between $2,000 and $4,000 per student.

Tuition income covers a smaller and smaller percentage of total operating expenses. In 1956–57 it averaged only 18 percent. How-

ever, no uniform pattern of financing exists, and for some schools tuition income represents only 1 to 2 percent of operating budgets.

Approximately one-half of the total funds required for medical school operations are derived from State, municipal, and Federal appropriations. The remainder (apart from tuition) is derived from endowment (11.5 percent), general university funds (6.7 percent), and from gifts, grants, and other sources (16.1 percent). In this area, too, no uniform pattern of medical school financing exists.

Medical schools are aided both through public programs (Federal, State, regional, or local), and through private programs (nationwide, statewide, or local). These programs are designed to assist medical schools in the financing of their operations or in the construction of facilities. Since medical schools, in addition to teaching, conduct research and provide medical services, programs aimed at one of these related functions may have a substantial impact on a medical school's operation and on its facilities as a whole. In addition to programs to aid medical schools, there are programs designed to aid medical students. Here, too, are public and private programs, and nationwide, statewide, and local programs.

State and regional programs

In 1956–57, States contributed approximately $52 million for the operation of 47 medical schools. Seven States contributed $26 million. Thirteen States and the District of Columbia, with a total civilian population of more than 19 million, did not contribute any public funds.

In recent years, several States have constructed facilities for medical schools. The recent construction of new medical school facilities in State schools has involved substantial expenditures ranging from $9 million to $28 million—construction which has been financed largely out of State funds.

In order to meet physician shortages, particularly in rural areas, several States have inaugurated extensive scholarship and loan programs to aid medical students. Under these programs, students accepting loans or scholarships must undertake to serve for specified periods of time in rural areas of their States.

Regional arrangements to assist medical schools and to aid medical students exist in the West, the South, and the Northeast. Under these arrangements, medical students from participating States enroll in medical schools of member States, with the home States paying agreed upon amounts per student to the receiving institutions. The students attending under these programs pay the same tuition fees as State residents.

Private programs

Privately financed statewide loan or scholarship programs are in effect in several States, and many of these programs, likewise, require commitments on the part of recipients for service in rural areas.

In recent years, a substantial effort has been made by voluntary organizations and foundations to make available additional support for current instructional uses of medical schools. Since 1951, the National Fund for Medical Education has distributed about $9.6 million among medical schools for such purposes. A program of endowment grants to privately supported medical schools in the amount of $90 million announced by the Ford Foundation in 1955 will provide approximately $3.5 to $4 million additional annual

operating income. To date, under this program, grants totaling approximately $22 million have been made to 44 privately supported medical schools. In 1955–56, the Commonwealth Fund appropriated $12.6 million in unrestricted grants to 19 medical schools in order to assist them in strengthening their programs of medical education.

Federal programs

The Federal Government aids medical schools and medical students through a number of different programs. The primary aims of these programs have been to provide training in particular health fields, promote medical research, construct facilities for hospital care and research, extend educational benefits to veterans, and provide additional health personnel for Federal service. These programs provide some measure of operational, construction, and scholarship aid for medical education.

If legislation providing for Federal matching grants for the construction of teaching facilities is enacted, all but a few of the 83 medical schools that replied report that between 1957 and 1962 they plan construction projects costing approximately $400 million. Of this total cost, approximately three-fifths would be chargeable to teaching and two-fifths to research. The schools expect to secure matching funds from individual bequests, State governments, foundations, alumni, institutional building funds, local industrial concerns, public subscriptions, and church organizations. With these additional facilities, two-thirds of the schools expect to increase enrollment in their freshman classes by 1,050 to 1,150 students, while one-third of the schools do not anticipate any additional enrollment.

I. MEDICAL SCHOOLS—PRESENT AND FUTURE CAPACITY

TRAINING CAPACITY IN THE UNITED STATES

1. How many medical schools are there in the United States?

In 1955–56, there were 76 medical schools with full 4-year programs, 6 schools of basic medical science with 2-year programs, and 1 new 4-year school with first-year students only—making a total of 83 schools in the United States (1 of which is located in Puerto Rico).

2. How many of the medical schools are privately owned and how many are publicly owned?

In 1955–56, there were 44 privately owned and 39 publicly owned medical schools.

3. Has the number of medical schools been increasing?

The number has been increasing slowly, from 76 in 1930–31, to 83 in 1955–56, to 85 in 1956–57. In addition to the 9 new schools established since 1930–31, 5 basic science schools were expanded to 4-year schools.

4. Are new 4-year medical schools being established?

At the present time, 3 of the remaining 6 two-year schools of basic medical science are in the process of expanding their programs to full 4-year programs:

University of Mississippi
University of Missouri
University of West Virginia

Two new 4-year schools opened in 1956–57:

Seton Hall College of Medicine, Jersey City, N. J.
University of Florida School of Medicine, Gainesville, Fla.

Another new 4-year medical school at the University of Kentucky is scheduled to open in 1959.

5. Are the new schools primarily publicly or privately owned?

Of the 14 four-year medical schools established since 1930–31, 9 are publicly owned schools and 5 are privately owned schools. All three of the basic science schools now in the

process of expanding their programs to a 4-year program are public schools. The proposed new school at the University of Kentucky will be a public school.

6. How many medical students are there?

In 1955–56, 28,748 students studying for the M. D. degree were enrolled in the 83 medical schools.

7. How many students other than undergraduate medical students attend medical schools?

The number of these "other students" appears to be more than twice the number of undergraduate medical students. According to some incomplete statistics, there were about 57,000 "other students" in 1954–55 as compared with about 29,000 undergraduate medical students. These "other students" include dental, pharmacy, and nursing students, student technicians, physicians studying for advanced degrees, students enrolled at the universities for their master's and doctor's degrees in basic medical sciences (biochemistry, microbiology, biophysics, physiology, etc.), and other university students.

8. Has the number of medical students been increasing?

Enrollment has been rising fairly steadily. In 1930–31, for example, there were 21,982 medical students. In 1955–56, the number was 28,748, the largest number to date.

9. Has the number of freshmen enrolled in medical schools increased?

Yes, between 1930–31 and 1955–56, the number of freshmen enrolled in United States medical schools increased by 1,286 from 6,456 to 7,742.

In the last 5 years since 1950–51, the number of freshmen enrolled increased by 565, thus accounting for nearly half the increase in the past 25 years.

10. Did expansion of established schools or the establishment of new schools provide the additional freshman places?

Of the 1,286 total increased freshman enrollment between 1930–31 and 1955–56, 677 represented additional places in established schools and 609 places were created by new schools or newly approved schools. Increased enrollment in established schools was concentrated in 11 schools, which increased their freshman enrollment by 30 or more. (At the same time, 9 other schools decreased their freshman enrollment by 30 or more places.)

Of the 565 total increased freshman enrollment during the last 5 years, increased enrollment in established schools accounted for 334 freshman places, and new schools or newly approved schools for 231 freshman places.

11. Have publicly owned schools increased their enrollment more than privately owned schools?

Yes, of the total 1,286 increased freshman enrollment between 1930–31 and 1955–56, publicly owned schools accounted for 987 freshman places and privately owned schools for 299 places. Of the 987 additional places in publicly owned schools, established publicly owned schools accounted for 580 places and new publicly owned schools accounted for 407 places. Increased freshman enrollment in established publicly owned schools was concentrated in 9 publicly owned schools, which accounted for an increase of almost 500 freshman places.

12. Why did some publicly owned medical schools substantially increase their enrollment?

The substantial increase in enrollment in recent years at publicly owned medical schools was due primarily to commitments to increase enrollment made by some medical schools to their State legislatures at the time when increased funds were voted for these medical schools.

13. What is the size of freshman classes at present in the various schools?

In 1955–56, 46 of the 76 approved 4-year medical schools had fewer than 100 freshman students; 18 of the schools had fewer than 75 freshmen. Only 2 schools had freshman classes of more than 200 students.

14. Have existing medical schools reached their capacity?

The question is whether existing medical schools can be expected to train more students in larger classes. It is generally accepted that medical training requires fairly small groups of students per instructor and also sufficient numbers of hospital patients in the community for student observation and study. The following views have been expressed by Deitrick and Berson in *Medical Schools in the United States at Mid-Century:*

> If more physicians are demanded, new medical schools should be established. To expand the classes of existing medical schools would result in mass production of physicians and make impossible the application of [close student-teacher contact] the most fundamental of all educational principles.

At its 1956 annual meeting, the Association of American Medical Colleges adopted a resolution which contains the following statement:

> It is possible that some existing schools can, with new facilities and larger facilities, accept additional students, but the need will not be met completely in this manner. The larger contribution in number of students will come, as it has in the past, by the establishment of new schools.

15. How long does it take to establish a new medical school?

The interval between the decision to establish a new medical school and the graduation of its first class is 6 to 8 years. After necessary funds are committed, it takes from 2 to 4 years to plan the program, construct the buildings, and secure a faculty. Another 4 years are required to graduate the first class. Thus, a new school planned in 1957 will not graduate medical students before 1963, or more likely 1965.

TRAINING CAPACITY—UTILIZATION OF FOREIGN MEDICAL SCHOOLS

16. How much additional training capacity for United States medical students do foreign medical schools provide?

During 1954–55 (the last year for which data have been compiled), 1,730 United States medical students were enrolled in foreign medical schools. This means that foreign medical schools—even after taking account of foreign students studying in United States medical schools—at the present time provide training capacity for United States medical students equivalent to approximately 3 to 4 additional medical schools.

17. Which countries have the largest number of United States medical students?

In 1954–55, the countries with the largest number of United States medical students were the following:

Switzerland	490
Italy	343
Canada	332
Netherlands	125
Belgium	103

18. Has the number of United States medical students studying abroad been increasing?

There are indications that the number of students studying abroad has increased markedly since World War II. Information on United States citizens studying abroad, however, is not wholly adequate. Incomplete official reports for 1939 indicate that there were approximately 500 United States citizens studying medicine in Europe, principally in Scotland. The number studying in Europe for 1954–55 is reported as 1,345.

19. Why do these students study abroad?

The following opinion has been expressed by Dr. Walter S. Wiggins, Associate Secretary, Council on Medical Education and Hospitals, American Medical Association:

> There was a period shortly following the last world war when our own medical schools could not accept all qualified applicants. Many of these, rather than give up a career in medicine, chose instead to study in other countries where admission to medi-

cal schools was possible. In more recent years, however, the ratio of applicants to admissions in United States schools has been such that very few qualified individuals are not accepted. There is a basis for considering that many, if not most, United States students now studying abroad were not considered qualified for such study in United States schools.

SUPPLY OF APPLICANTS—NATIONALLY

20. How many students apply for admission to medical schools?

In 1955–56, 14,937 students applied for admission to United States medical schools.

21. How many applicants are accepted?

In 1955–56, 7,742 applicants were accepted.

22. What is the present ratio of applicants to students admitted?

In 1955–56, there were 1.9 applicants for each freshman student admitted by United States medical schools.

23. Has this ratio remained the same over the years?

No, it has not. Prior to World War II, the ratio was about the same as it is now. Immediately following World War II, however, the ratio started rising, reaching its peak in 1948–49 with 3.6 applicants for each freshman student admitted. In 1955–56, the ratio dropped to the post-World War II low of 1.9 applicants for each freshman enrolled.

24. Is the number of applicants a pertinent factor in planning for future medical school capacity?

In planning for the needed future capacity of American medical schools, the Association of American Medical Colleges has taken into consideration two major factors: (1) "* * * health care of the American people * * * will require increasing numbers of all types of personnel, including physicians * * *" and (2) "* * * many more young men and women will be seeking higher education and training in one of the health professions."

25. Is the number of applicants expected to increase?

Yes, the number of applicants to medical schools is expected to increase sharply between now and 1965.

26. How will the increase in the number of applicants affect the percentage of students admitted?

The expected increase in the number of applicants is likely to result in a substantial decrease in the percentage of those

admitted as freshman medical students, unless the number of freshman places increases considerably beyond that now projected for 1960.

27. Are there any estimates as to the future number of applicants to medical schools?

Estimates prepared by the Association of American Medical Colleges on the number of future applicants to medical schools are based on the projected number of bachelor degrees and various projections of the number of college graduates who will apply to medical schools. On this basis, the association estimates a minimum increase to 21,837 applicants in 1965, an intermediate increase to 23,154 applicants, and a maximum increase of 33,687 applicants (as compared with 14,937 applicants in 1955).

28. What are some of the factors that may influence the number of future applicants?

Two factors will tend to increase the number of medical school applicants: (1) the growth of population in the 18–24 age group, and (2) the increased proportion of that age group enrolled in college. On the other hand, over the years a decreasing percentage of college graduates has entered the field of medicine. Other factors which will affect the number of medical school applicants are general economic conditions, draft deferment policies, availability of educational benefits, employment opportunities for youth without college training, etc.

29. What is the ratio of applicants per 100,000 population nationally?

In 1955–56, 8.7 applicants from continental United States per 100,000 total population sought to enter medical schools.

30. What is the training capacity per 100,000 population nationally?

In 1955–56, there were 4.6 freshman places per 100,000 population in continental United States.

TRAINING CAPACITY AND SUPPLY OF APPLICANTS—STATE AND REGIONAL VARIATIONS

31. Where do most of the applicants come from geographically?

About one-half of all the applicants come from seven States—New York, Pennsylvania, California, Illinois, Ohio, Texas, and New Jersey—in this order. These States have 44 percent of the population of continental United States. New York State, which has about 10 percent of the total population of the United States, furnishes 16 percent of all applicants.

32. Does the ratio of applicants to population vary materially in different regions of the United States?

The Northeast region leads with 11.3 applicants per 100,000 population and the West trails with 7.4 The North Central region and the South with 7.6 and 8.0 applicants, respectively, per 100,000 population are very close to the national average. However, there are wide variations among different States in a single region. For example, in the Northeast region New York has a ratio of 14, while Maine has a ratio of 5. In the West Nevada has a ratio of 3 while Utah has a ratio of 13.

33. Do schools with residence restrictions receive relatively fewer applications than schools without such restrictions?

Yes, they receive fewer applications in relation to the number of places available in their freshman classes.

34. How are the medical schools distributed geographically?

Four States have 5 or more medical schools (New York 10, Pennsylvania 6, California 5, and Illinois 5). Fourteen other States have two or more medical schools. On the other hand, nine States have no medical schools in 1956–57 (Arizona, Delaware, Idaho, Maine, Montana, Nevada, New Mexico, Rhode Island, and Wyoming).

35. How is the training capacity distributed geographically?

The fact that some States have several medical schools within their borders does not mean that they rank high with regard to training capacity. New York State, for example, with 10 medical schools has approximately 6 freshman places available per 100,000 population, while Vermont with only

1 medical school has 14 freshman places available per 100,000 population. On the other hand, these 6 or 14 places, respectively, are not preempted by New York or Vermont residents. In New York, 2 of the 6 places are taken by out-of-State students while in Vermont 9 of the 14 places are taken by out-of-State students.

36. Do fewer freshmen in relation to State population come from States without medical schools?

In 1955–56, the 9 States without medical schools had fewer than the national average number of their residents enrolled as freshman students per 100,000 population.

ADMISSION POLICIES

37. What are the qualifications for admission to medical schools?

The Association of American Medical Colleges lists the following student characteristics in addition to academic achievement in evaluating medical school applicants:

Character and integrity, intellectual characteristics, emotional characteristics, motivation toward a career in medicine, initiative, personality characteristics, breadth of interest, strength of drive for academic achievement, nature of interest in medicine, philosophy of life, social characteristics, first impression in interview, and physical characteristics.

38. What are the educational qualifications for medical school students?

While a minimum of 3 years of college study is required by practically all medical schools, 51 medical schools recommend a bachelor degree which requires 4 years of college study. Actually, in 1955–56, 75 percent of all medical school freshmen had 4 years of college education, and 70 percent possessed baccalaureate degrees. College courses in certain subjects are either required or recommended.

39. How many applicants fail to meet the basic educational qualifications for entrance to medical schools?

There is no information on the educational qualifications of candidates rejected by the schools. In 1955–56, of the 19 percent of applicants who had applied a year earlier and were repeating their application, 40 percent were accepted. Many of the repeaters made their first application as college juniors and were accepted with the additional year of college work.

40. Is there a generally recognized standard for testing the educational aptitude of applicants?

A medical college admission test sponsored by the Association of American Medical Colleges is given each year. The medical college admission test is now either required or recommended by all schools. It is estimated that 90 to 100 percent of students in 79 medical schools took the examination before entering the 1955–56 freshman class.

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41. Do medical schools attract college students with outstanding scholastic records?

The number of college students entering medical schools with grade A averages has decreased from 40 percent in 1950–51 to 16 percent in 1955–56, while the number of students with grade B averages has increased from 43 percent to 70 percent. On the other hand, the number of students with grade C averages has declined from 17 percent to 14 percent.

42. Are there special residence restrictions governing admissions to medical schools?

Yes, there are in existence at many medical schools restrictions or preferences based on the State of residence of applicants. Specifically, of the 40 publicly owned medical schools in operation in 1956–57, 10 restrict admission to residents of their State, 29 give preference to their residents, and 1 school has neither restrictions nor preference. Of 45 privately owned schools, none restrict admission to residents of their State, 14 schools give preference to residents of their State, and 31 schools have no restrictions.

43. What is the actual enrollment practice regarding residents and nonresidents?

In 1955–56, only 14 of the 39 approved public schools had as many as 10 percent of their freshmen come from out of State. In contrast, all but a few of the approved private schools had at least a 10 percent enrollment of out-of-State freshmen. In fact, 12 of the private schools had as many as 75 percent of their students from out of State.

44. Why are residence restrictions found in the publicly sponsored medical schools?

Limitation of admissions to residents of the State and preference in favor of State residents grow out of the general feeling that tax-supported educational advantages should be available only—or at least should be available on a priority basis—for the sons and daughters of the taxpaying residents of the respective State. This policy, in various forms, may be found throughout the field of public education.

45. Do schools with residence restrictions have relatively more students who made lower grades in their entrance examinations?

Yes, statistics show that medical schools with residence restrictions enroll higher percentages of students with poorer records in their medical college admission tests than medical schools which do not have such restrictions. However, factors other than these restrictions may be equally responsible for this result.

II. MEDICAL SCHOOLS—GRADUATES AND PHYSICIAN REQUIREMENTS

GRADUATES FROM MEDICAL SCHOOLS IN THE UNITED STATES

46. How many students graduate from medical schools?

In 1955–56, 6,845 students graduated from medical schools in the United States.

47. Has the number of graduates been increasing?

The number of students graduating from United States medical schools has been increasing steadily. In 1930–31, for example, 4,735 students graduated while in 1955–56 the number rose to 6,845. (Slight deviations during several intervening years from this steadily rising trend were due to special circumstances connected with changes in curricula and graduating requirements at several schools.)

48. Is it expected that the number of medical school graduates will continue to rise?

Estimates based on present enrollment in first-year classes with a normal 8 percent rate of attrition show that the following number of medical school graduates may be expected during the next 4 years:

1957	6,850
1958	6,970
1959	7,120
1960	7,290

49. What is the trend expected to be after 1960?

Without any increase in enrollment in existing medical schools, additional graduates could come only from newly established medical schools. The scheduled establishment of a medical school at the University of Kentucky (50–75 freshmen) and the contemplated establishment of a medical school at the University of Connecticut (50 freshmen) might

result in producing the following number of graduates during 1961–65:

1961	7,290
1962	7,290
1963	7,335
1964	7,360
1965	7,410

LICENSURE OF GRADUATES

50. How does a medical school graduate get a license to practice?

Each of the States has its own Medical Practice Act under which eligibility for the practice of medicine is determined. Licensing authorities give their own medical board examinations. Twenty-six States require a 1-year internship. Some additional States require an internship as a condition for licensing graduates of foreign medical schools.

The National Board of Medical Examiners conducts examinations and issues certificates that are accepted as an adequate qualification for a medical license by the licensing authorities in all except 9 States. Candidates for the national board examination must have graduated from medical school and completed at least one year of internship training.

51. What percentage of candidates who graduate from United States medical schools pass their medical board examination?

In 1955, of 6,254 candidates graduated from United States approved medical schools, 95.6 percent passed their examination. On reexamination almost all candidates pass their examination.

52. What percentage of candidates who graduated from foreign medical schools pass their medical board examination?

In 1955, of 1,777 foreign-trained candidates, only 58.6 percent passed their examination. (This excludes candidates trained in Canadian medical schools.)

53. Are foreign-trained candidates immigrant physicians or are they United States citizens who studied abroad?

For the most part, they are immigrant physicians. However, since 1954–55, the number of United States citizens who received their medical licenses in the United States upon completion of their studies abroad increased sharply. In 1954–55 there were 89 licensees, almost the equivalent of the preceding 5-year total. It is anticipated that this number will

continue to increase substantially in the immediate period ahead.

54. Must a licensed physician be a United States citizen?

Ten States do not grant licenses to physicians trained exclusively in foreign countries other than Canada; 21 other States require United States citizenship, and 13 States require first papers. No citizenship requirement exists in four States and the District of Columbia.

INTERNSHIPS AND RESIDENCIES

55. What is an internship?

An internship is a period of training and education in a hospital, usually of 1 year's duration, following graduation from medical school. While training is the principal purpose of an internship, hospitals depend to a considerable degree on interns for staff services to patients.

56. What is a residency?

A residency is a period of training and education in a hospital following internship, from 1 to 5 years in duration depending on the medical specialty. As in the case of internship, hospitals rely extensively on residents for staff services to patients.

57. What is an "approved" internship or residency?

An "approved" internship or residency is one that meets the standards of, and is approved by, the American Medical Association. These standards relate to the capacity of the hospital (or of a department within a hospital in the case of residencies) to provide acceptable training.

58. Is the number of "approved" internships and residencies geared to the number of medical school graduates?

No, it is not. The standards of approval relate to the qualifications of hospitals and not to the number of graduates.

59. What is the number of approved internships?

For the year 1955–56, the total number of approved internships was 11,616. The number of hospitals offering these internships was 867.

60. Has the number of approved internships increased?

In the past 10 years the number of approved internships has risen about 36 percent, from 8,539 to 11,616. During the same period, the number of approved hospitals offering these internships increased 13 percent, from 764 to 867.

61. Are all available approved internships filled?

No, of the 11,616 available, 2,013 remained vacant in 1955–56.

62. Who serve as interns?

In 1956, there were 6,845 United States medical school graduates available to serve as interns. This left a disparity of over 4,500 internships. Almost one-half of these 4,500 internships were filled by alien physicians.

63. How much are interns paid for their services?

The internship stipends vary for different types of hospitals. Hospitals affiliated with medical schools usually pay a smaller cash stipend (averaging $121 per month) than nonaffiliated hospitals, which pay an average of $169 per month. In addition to the cash stipend, most of the hospitals furnish full maintenance. A minority of hospitals furnish only partial maintenance.

64. What is the number of approved residencies?

For the year 1955–56, 26,516 approved residencies were available. The hospitals offering approved programs numbered 1,202.

65. Has the number of residencies increased?

Yes, in 1946–47, there were 12,003 approved residencies. This number increased to 25,486 in 1954–55 and to 26,516 in 1955–56.

66. Are all available residencies filled?

No, of the available 26,516 approved residencies, 5,091 remained vacant in 1955–56.

67. Has the number of vacant residencies increased?

The number of vacancies increased from 1,179 in 1949–50 to 4,869 in 1950–51 and to 5,091 in 1955–56. However, the proportion of vacancies to the total number of residencies available has been decreasing from 25 percent in 1950–51 to 19 percent in 1955–56.

68. Is a license to practice medicine necessary for interns and residents?

Licensure or a temporary registration is required for interns in only eight States and the District of Columbia. For residents, 31 States and the District of Columbia require a license or registration.

FOREIGN-TRAINED INTERNS AND RESIDENTS

69. How many alien physicians serve in approved internship positions in United States hospitals?

In 1955–56, 2,293 alien physicians (immigrants and visitors) served in approved internship positions in United States hospitals out of a total of 8,780 approved internships reported to the Office of Defense Mobilization.

70. How many alien physicians serve in approved residency positions in United States hospitals?

In 1955–56, out of the total of 21,213 approved residencies reported, 5,580 were filled by alien physicians.

71. What is the total number of alien physicians serving in approved internship and residency positions in United States hospitals?

In 1955–56, a total of 7,873 alien physicians served in approved internship and residency positions in United States hospitals.

72. Has the number of alien physicians serving in approved internship and residency positions in United States hospitals been increasing?

Yes, the number increased from 2,072 in 1950–51 to 6,695 in 1954–55 to 7,873 in 1955–56. This constitutes an 18 percent increase within a period of 1 year and a 280 percent increase over a period of 5 years. Over this same 5-year period, United States citizens serving in approved positions in United States hospitals decreased 1 percent.

73. How many hospitals have one or more house staff positions filled by alien physicians?

In 1955–56, there were 1,386 United States hospitals which had approved training programs for interns and residents. During this year, 912 of these reported 1 or more alien physicians on their house staffs. In 1954–55, 875 hospitals reported alien house-staff members. Five years earlier, alien house-staff members were reported in training by only 730 hospitals.

74. In what States are the hospitals located in which alien physicians serve as interns and residents?

They are located in the District of Columbia and in all States except Idaho, Nevada, New Mexico, and Wyoming. In 1955–56, New York hospitals reported the largest number (2,005) of alien physicians serving as interns and residents, followed by Illinois with 710, Ohio 682, New Jersey 523, Massachusetts 560, Pennsylvania 405, Missouri 315, Maryland 293, California 233, Minnesota 215, and Connecticut 202.

In New Jersey and South Dakota approximately 68 percent of hospital house staffs were alien physicians, in West Virginia 60 percent, and in Arizona 49 percent.

75. What are the principal countries from which alien physicians come on visitors' visas to train as interns or residents?

In 1955–56, alien physicians (on visitor visas) serving as interns and residents in approved hospitals of United States came from 84 countries. The largest numbers, however, came from the following countries:

Philippine Islands	1,065
Canada	584
Mexico	489
Germany	364
Turkey	320
Italy	260
Greece	232
Korea	216
India	208
Japan	190
China	163
Cuba	147
Iran	136
Argentina	121
Spain	116
United Kingdom	110

76. Are there special licensing requirements for alien physicians serving as interns or residents?

West Virginia is the only State that specifically requires graduates of foreign medical schools to be licensed as a condition for serving as residents; registration, for serving as interns. In most States, no license, or only a temporary license, is required of interns and residents.

77. For what purpose do alien physicians come to the United States?

The majority of foreign-trained physicians coming to the United States do so for the purpose of securing further training as interns or residents in United States hospitals. They enter the United States on temporary visas under the ex-

change-visitors program of the Department of State authorized by the United States Information and Educational Exchange Act of 1948, as amended (Public Law 402, 80th Cong.). The training of foreign physicians in the United States is a part of a general exchange program which includes trainees in public administration, industry, medicine, agriculture, and other specialized fields of knowledge. The medical program, however, comprises by far the largest number of trainees.

78. Has the extensive practice of letting alien physicians fill house staff positions met with criticism?

Yes; it has. The criticism is not directed against the training of foreign physicians in the United States, but it is directed rather against the circumstance that many of these physicians have not received, at their medical schools, education equivalent to a medical education in the United States which would justify their assuming responsibility as interns and residents for the care of patients. Dean Willard C. Rappleye, M. D., of the faculty of medicine, Columbia University, for example, made the following statement with regard to the service of foreign-trained interns and residents:

"At the present time over 25 percent of the house staffs in the hospitals of the United States are aliens. The percentage in a few States is over 50 percent. It has been reported recently that between 5,000 and 6,000 foreign-trained physicians will enter the country this year, compared with a total of 6,977 graduates of all the American medical schools. Most of the foreigners will be graduates of unapproved medical schools. In many sections of the country there are now two classes of citizens as far as medical services are concerned: those who are to be cared for by physicians who have had a satisfactory preparation for medical practice, and those whose medical care will be provided for by physicians who are graduates of substandard schools. The situation today is reminiscent of the diploma-mill era of 50 years ago."

79. How is it determined whether the training received by graduates of foreign medical schools is equivalent to the training received by graduates of United States medical schools?

A program to evaluate the medical qualifications of individual foreign-trained physicians who wish to come to the United States has been formulated by the Cooperating Committee on Graduates of Foreign Medical Schools. This committee consists of representatives of the Council on Medical Education and Hospitals of the American Medical Association, the Federation of State Medical Examining Boards, the American Hospital Association, and the Association of American Medical Colleges.

The purpose of the program is to furnish to hospitals information with respect to the medical qualifications of graduates of foreign medical schools in order to enable hospitals to determine whether foreign-trained graduates have reached a level of educational attainment comparable to that of students in American schools at the time of graduation.

NUMBER OF PHYSICIANS

80. How many physicians are there in the United States?

As of mid-1955, there were 218,061 physicians in the United States, exclusive of the June graduates.

81. How many physicians are there in the United States per 100,000 population?

In 1955, there were 133 physicians for each 100,000 persons in continental United States. This ratio includes physicians in private practice, in Government service (both military and civilian) in hospital service, in research and teaching, and also those who have retired or may not be in practice for other reasons.

82. Has the number of physicians per 100,000 population been increasing?

No. While there has been a fairly steady rise in the number of additions to the licensed profession, resulting in a net gain in the number of licensed physicians, the growth in population has outdistanced this gain. The result has been either no increase or a slight decrease in the number of physicians available per 100,000 population.

The number of physicians per 100,000 population has changed relatively little over several decades. In 1920 there were 136 physicians per 100,000 population; in 1930, 125; in 1940, 133; in 1950, 135; and in 1955, 133 per 100,000 population.

83. Would the ratio of physicians per 100,000 population have been maintained without the influx of foreign-trained physicians?

No; it would not have been maintained. During the 6-year period 1950 through 1955 there was an average annual net gain in the number of physicians of approximately 3,100. Out of this number, approximately one-fifth, on the average, were foreign-trained physicians who were added to the medical profession.

84. How many foreign-trained physicians were added in 1955 to the United States medical profession?

In 1955, 907 foreign-trained physicians were granted initial licenses to practice medicine in the United States and thus constituted additions to the United States medical profession.

85. Has the number of foreign-trained physicians who are added to the United States medical profession been increasing?

Yes, the number of foreign-trained physicians who received initial licenses and who thus constitute additions to the United States medical profession has risen steadily since World War II. The number increased from 308 in 1950 to 907 in 1955. The total number for the last 6 years stands now at 3,691.

86. Where in the United States do foreign-trained physicians practice?

In the 10-year period 1946–55, in all but two States (Idaho and Utah) foreign-trained physicians were licensed to practice medicine. New York licensed 1,862 foreign-trained physicians during this period; Illinois, 971; Ohio, 751; California, 652; New Jersey, 324; and Connecticut and Maryland, over 200 each. District of Columbia, Florida, Maine, Michigan, Rhode Island, Texas, and Virginia each report 100 to 200 foreign-trained physicians licensed during the 10-year period.

87. How much additional training capacity in United States medical schools would have been required to provide the number of medical school graduates equivalent to the number of foreign-trained physicians who are now being added to the United States medical profession?

The 907 foreign-trained physicians who were added to the United States medical profession in 1955 represent the equivalent of the number of graduates of approximately 10 medical schools. (These foreign-trained physicians include United States citizens who attended foreign medical schools.)

88. Are there substantial variations in the geographic distribution of physicians per 100,000 population?

Yes; there are wide variations in the supply of physicians in relation to population. In 1955, New York and Massachusetts, for example, had 193 and 174 physicians per 100,000 population, respectively. Mississippi and South Carolina had 74 and 76 per 100,000 population, respectively.

89. Have geographic disparities tended to disappear over the years?

No. The disparities among States in the number of physicians per 100,000 population have widened rather than narrowed. In the 34-year period from 1921 to 1955, a period in which physician-population ratios remained fairly stable over the Nation as a whole, some States with the lowest ratios of physicians to population experienced a further reduction in numbers of physicians relative to population.

90. Are there more physicians per 100,000 population in urban than in rural areas?

There are a larger number of physicians in relation to population in urban communities than in rural areas. In 1949 there were almost twice as many active non-Federal physicians per 100,000 population in metropolitan areas and in counties contiguous to them as in the more rural counties. Although these rural counties contain about 27 percent of the total United States population they have only about 17 percent of the active non-Federal physicians. Rural counties have a low ratio of general practitioners to population as well as relatively fewer specialists and physicians in hospital service.

91. What are some of the factors which are responsible for the present geographic and rural-urban distribution of physicians?

Apart from economic factors, which include prospective earning capacity and availability of medical facilities, there are other factors, including personal preferences, which appear to influence a physician's choice of location.

92. Do medical school graduates tend to practice in States in which they attended school?

Surveys made of the classes of 1930, 1935, 1940, and 1945 showed that close to one-half of the medical school graduates in these classes were practicing in the State in which they attended medical school.

93. Do medical school graduates tend to practice in the State in which they lived prior to their medical training?

The same surveys of the classes of 1935, 1940, and 1945 showed that between 55 and 60 percent of the medical school graduates in these classes are practicing in the State in which they lived prior to their medical training. About 30 percent of graduates practiced in the same community in which they lived prior to training.

94. Do medical students from small communities tend to practice in small communities?

Graduates whose prior residence was in communities of fewer than 2,500 people show a greater tendency to locate in such small communities than do those who came from larger places. About 1 out of each 4 graduates who came from communities of fewer than 2,500 people were practicing in such communities. On the other hand, only 7 percent of graduates who came from cities of 500,000 population or more were practicing in small communities.

95. Do the residence restrictions of medical schools have implications for the place of practice of their graduates?

A slightly larger percentage of graduates from publicly owned medical schools with residence restrictions appear to remain in their respective States than do graduates from medical schools without such restrictions. However, it is contended that factors other than these restrictions (such as available facilities, earning prospects, etc.) may be equally responsible for this result.

Publicly owned schools appear to draw a higher proportion of their students from small communities. About 43 percent of the 1945 graduating class from public schools came from communities of under 25,000 as compared with 33 percent for private school graduates. Since graduates whose prior residence was in smaller communities appear to show a greater tendency to return to smaller communities than graduates whose prior residence was in larger communities, it may be concluded that public schools contribute a higher proportion of physicians to smaller communities than do private schools.

PHYSICIAN REQUIREMENTS

96. Is there an overall shortage of physicians?

There have been a number of different answers to this question, ranging from an outright denial of an overall shortage (admitting only geographic maldistribution) to the assertion of a critical overall shortage. The Council on Medical Education and Hospitals of the American Medical Association in its report for 1954–55 made the following statement with respect to the existence of an overall physician shortage: "No one will deny the fact that, with a constantly growing population and with the ever-increasing health consciousness of the Nation, there will be a constant and continuous demand for increased numbers of medical personnel and that this will necessitate new medical schools and possible augmentation of the facilities and faculty personnel of those now in existence."

97. What specific needs for additional physicians have been reported?

Specific needs for additional physicians have been reported in some medical specialties, in governmental and institutional programs, and in rural areas.

98. Is there a shortage of psychiatrists?

It was testified in the course of the health inquiry conducted during the 83d Congress by the Committee on Interstate and Foreign Commerce, House of Representatives, that there was a need for approximately 7,000 to 12,000 additional psychiatrists. This compares with a present supply of approximately 8,000 practicing psychiatrists.

99. Is there a physician shortage in State and local mental hospitals?

There were 739 unfilled budgeted positions for physicians in State and county mental hospitals in 1954. Of these, 639 were for psychiatrists or psychiatric residents. A larger number of vacancies existed than these statistics indicate, since information on which these figures are based is incomplete.

As of the end of the fiscal year 1955 there were 2,659 physicians caring for approximately 553,000 patients in State mental hospitals; about 6,377 additional psychiatrists are

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needed to meet personnel ratio standards developed by the American Psychiatric Association for public mental hospitals.

100. Is there a physician shortage in State and local health departments?

A shortage of about 200 physicians was reported by State health departments as of December 31, 1953. A shortage of 1,720 physicians has been reported by full-time local health departments, in a 1953 United States Public Health Service survey. This survey indicates that 849 of these departments needed additional physicians to attain the minimum standard of 1 public health physician per 50,000 population or at least 1 public health physician for each local health unit. A total of 436 vacancies for health officers was reported by local health departments with full-time public health staffs as of July 1956.

101. Is there a physician shortage in the United States Public Health Service?

As of the end of October 1956, 119 vacant budgeted positions for physicians were reported by the United States Public Health Service.

102. Is there a physician shortage in the Veterans' Administration?

Unfilled budgeted vacancies for physicians in veterans' hospitals and outpatient clinics totaled 356, as of December 21, 1956.

An especially critical shortage exists with regard to psychiatrists. As of March 31, 1956, the Veterans' Administration reports that it required 364 additional psychiatrists. At that time, 502 physician-psychiatrists were caring for almost 50,000 psychiatric patients; 866 psychiatrists would be needed to give proper treatment to these patients in accordance with the standards developed by the American Psychiatric Association.

In order to attract more residents in psychiatry and physical medicine and rehabilitation, the Veterans' Administration has inaugurated career training programs in these two fields. Under these programs, residents are required to serve for 2 years upon conclusion of their regular 3-year training program. Career residents are paid at the salary rates for full-time physicians, which is more than twice the amount paid to regular residents.

103. Is there a shortage in the faculties of medical schools?

Medical schools reported 251 unfilled faculty positions for 1955–56. Of this number, 108 faculty positions were in basic sciences departments, and 143 faculty positions were in clinical departments.

104. Is there a physician shortage in rural areas?

Yes, there is. Several States have recognized the need for additional physicians in rural areas and have adopted programs requiring practice in rural areas for a limited period of years by medical school graduates in return for financial aid extended to them through scholarships or loans. Also, the American Medical Association has established a committee on rural medical service to assist rural communities to secure needed physicians.

105. What estimates have been made with regard to an overall physician shortage?

A number of estimates giving specific figures have been made on the overall shortage of physicians. Each of these estimates has been based on different assumptions with regard to population growth and arbitrarily selected standards of need for medical services. Any specific figures computed on this basis are only as valid as the assumptions made and the standards selected. As has been stated by the Council on Medical Education and Hospitals of the American Medical Association in its report for 1954–55 (in which the council acknowledged a constant and continuous demand for increased numbers of medical personnel): "Probably no analytical reports of estimated requirements that have been developed in this rapidly changing scene can accurately represent more than the existence of felt needs in some areas."

106. Are physician-population ratios an adequate measure of the need for medical services?

Changes in physician-population ratios over a period of years must be viewed in the context of changes in medical practice and knowledge, changes in organization of medical services, and changes in the health needs of the population. Advances in scientific knowledge, the growth in numbers and kinds of supporting health personnel, increased use of hospital and other specialized health facilities, as well as many other factors, have altered the capacity of the physician to provide medical services. At the same time the increases in life expectancy brought about in part by advanced medical knowledge have changed the age composition of the population, resulting in increased amounts of chronic illness in the population, and thereby increased medical service requirements.

An example of changing demand for medical personnel is the manufacturing pharmaceutical industry. Twenty years ago, that industry employed approximately 65 physicians. Ten years ago the number rose to approximately 155, and at the present time the industry employs 380 physicians. The number of persons employed in that industry with graduate degrees in allied sciences (bacteriology, biology, bio-

chemistry, pharmacology, etc.) is, and always has been, much larger. The demand for such personnel, most of whom receive a large part of their training in medical schools, is likewise increasing constantly. Twenty years ago, the industry employed about 300 such specialists, 10 years ago, approximately 990, and at the present time, the number stands at 3,000.

III. MEDICAL SCHOOLS AND MEDICAL STUDENTS—FINANCIAL ASPECTS

COST AND FINANCING OF MEDICAL SCHOOLS

107. How much do medical schools spend annually?

In 1956–57, total "basic medical school operating budgets" of 82 medical schools amounted to approximately $111 million. "Basic medical school operating budgets" include funds utilized for the operating activities of medical schools, but exclude funds for (1) hospital or clinic operation and maintenance, and (2) grants-in-aid from outside sources for research or teaching.

108. How much of the total amount expended annually in the United States for health purposes is spent on training of physicians?

During 1955, private and public health expenditures in the United States amounted to about $15.5 billion. During the same year, less than 1 percent of this amount was spent on the training of physicians.

109. Are medical school operating expenses increasing?

Yes. Medical school operating budgets are increasing steadily. In 1950–51 the basic operating budgets of all medical schools amounted to approximately $67.5 million, as compared with the 1955–56 budgets totaling approximately $98 million, and the 1956–57 budgets totaling approximately $111 million.

110. Does tuition income pay for medical school operating expenses?

No, it does not. In 1956–57, tuition income on the average covered only 18.2 percent of total operating budgets.

111. What is the trend with regard to the percentage of operating expenses covered by tuition income?

Tuition income tends to cover a smaller and smaller percentage of total operating expenses. In 1950–51, tuition income covered 22.5 percent of total operating budgets as compared with 19.2 percent for 1955–56 and 18.2 percent for 1956–57.

112. What are the sources of revenue other than tuition income from which medical schools derive funds to cover their operating expenses?

Approximately one-half of the funds required for medical school operations (more precisely, 47.5 percent) was derived in 1956–57 from government (State, municipal, and Federal) appropriations. The remainder (apart from tuition) was derived from endowment (11.5 percent), general university funds (6.7 percent), and gifts, grants, and other sources (16.1 percent).

113. Do these figures accurately reflect actual distribution of sources of financing in individual schools?

No, they do not. No uniform pattern exists which would be applicable to all schools. For example, 34 of the 82 schools receive no operating funds from governmental sources; 32 have no endowment income; and only 35 report allocations from general university funds. Tuition income of all schools covers, on the average, approximately one-fifth of total medical school operating costs. For some schools, however, tuition income represents only 1 to 2 percent of their operating budgets, while for other schools tuition income constitutes a major source of support.

114. Is there a uniform pattern with regard to source of funds for budgets of privately owned and publicly owned medical schools?

No, there is not. Some privately owned medical schools derive more funds from public sources than do some publicly owned medical schools. Some publicly owned medical schools have endowment income, like many privately owned schools, while other publicly owned schools have not.

115. What does it cost to teach medical students?

It is difficult to answer this question with any degree of accuracy. In the first place, medical schools are in most instances part of a university and receive supplies and services as well as funds from universities. Secondly, medical schools traditionally serve three interrelated functions which are integral parts of a medical education, and which are difficult to separate: (*a*) Teaching, (*b*) research, and (*c*) rendering medical services in clinics and hospitals. (Of 76 medical schools which have replied to date to a questionnaire, 41 schools report that they own and operate their teaching hospitals.) Third, medical schools teach, in addition to 29,000 undergraduate medical students studying for their M. D. degrees, about 57,000 other students. Because of these factors, accurate cost allocations are difficult to make, and, therefore, the cost of teaching a medical student is difficult to establish.

116. Does available information indicate wide variations in the cost of teaching among different medical schools?

Yes; medical schools have reported wide variations ranging from slightly over $1,000 per student to more than $15,000. However, in spite of these extreme disparities, approximately one-half of the schools report costs between $2,000 and $4,000 per student per year.

117. Do State payments to medical schools reflect actual cost of teaching?

The State of Pennsylvania makes annual contributions to the 6 privately owned medical schools in the State on the basis of $2,000 per student. Florida supports the privately owned University of Miami Medical School by paying to the school $3,000 per year per Florida student. Under an interstate compact in the southern region, medical schools accepting out-of-State medical students are paid by the sending State $1,500 a year per student. Under the western region interstate compact these payments amount to $2,000 per student annually. The fact that these amounts are paid per student per year to the schools in question does not imply that these are the actual costs at these or at other medical schools.

118. Are other university departments subsidizing medical schools?

It has often been stated that a medical school is subsidized by other departments of the university. The annual report for 1955 of the Ford Foundation states that while enrollments in medical schools constitute less than 10 percent of the full student bodies, they may absorb as much as 36 percent of the university's budget. The high teacher-student ratio required for medical training, as well as costly equipment, supplies, and maintenance, result in a comparatively high cost per student in medical schools. The Ford Foundation states that the total cost per year of training a medical student is about four times that of a liberal-arts student.

119. Have large scale research activities resulted in increased medical school deficits?

Statements have often been made that the large-scale research activities engaged in by medical schools have caused financial losses to medical schools and universities. It has been contended that research grants, and particularly Federal research grants, do not provide adequate reimbursement for overhead costs, requiring the schools and the universities to divert funds from teaching to research. This situation has received extensive study by the Federal Government, and increased overhead allowances have been provided for several types of Federal medical research grants. The adequacy of these increases is in dispute in some cases.

120. How much have medical schools spent for the construction of facilities in recent years?

Medical schools have reported the expenditure of the following amounts for completed construction projects, which include not only teaching facilities, but also research, clinical, and other related facilities:

1955–56	$65 million.
1954–55	$99.4 million.
1953–54	$59.7 million.

121. How much has been spent recently for the construction of new medical schools?

The University of Missouri, which completed construction of its medical center in 1956, reports a total expenditure of $13.6 million, of which $3.3 million was spent for a medical sciences building, $8.6 million for a teaching hospital building, $1.2 million for powerplant expansion, and $0.5 million for nurses' dormitories. All of these funds, with the exception of a hundred thousand dollar Hill-Burton grant, were appropriated by the State Legislature.

The Albert Einstein College of Medicine, New York, N. Y., reports an expenditure of $10 million for a basic science building, $2 million for equipment and furnishings, and $1.5 million for a library and auditorium. With the exception of a mortgage of $3.8 million obtained from the Metropolitan Life Insurance Co., all funds were secured through voluntary contributions from individuals and organizations throughout the United States.

The University of Mississippi spent $9 million for the construction of its medical center, which includes schools of medicine and nursing, and a teaching hospital. Of this amount, $3 million were Federal funds under the Hill-Burton Act, $1.5 million were contributed by Hinds County, and $4.5 million were appropriated by the State Legislature.

The West Virginia University School of Medicine has underway a $28 million construction program, including a basic sciences building, and a teaching hospital and clinic.

The University of Florida School of Medicine completed a medical sciences building at a cost of about $5.6 million. An additional appropriation of approximately $660,000 will be required to complete the equipping of the building. A 400-bed teaching hospital is now under construction at an estimated cost, including equipment, of $11.5 million. The Florida State Legislature has either appropriated or will be requested to appropriate all of these funds but $248,000 which represent Federal matching funds for rehabilitation areas.

The University of Miami School of Medicine, Florida, utilizes facilities owned by the Veterans' Administration and the Jackson Memorial Hospital. Structural changes in these buildings and equipment required by the medical school cost approximately $0.5 million.

The University of California Los Angeles Medical Center was constructed during the period 1951 through 1954 at a cost of approximately $23 million. The medical center includes teaching and minimal research areas for the basic and clinical sciences, a 320-bed hospital and clinics, a library, and animal quarters. The cost of construction includes the initial furnishings and equipment. All of the funds for the structure and its furnishings were obtained from the California State Legislature. A cancer research wing was constructed simultaneously with and contiguous to the medical center structure at a cost of $826,000 with funds received from the United States Public Health Service.

STATE PROGRAMS IN SUPPORT OF MEDICAL SCHOOLS

122. What are the States doing to support medical schools?

Thirty-two States and Puerto Rico own and operate 38 medical schools. Five States own and operate more than one medical school. The municipality of Cincinnati owns and operates one medical school. Pennsylvania and Kentucky give financial support to privately owned medical schools. Florida gives financial support to a privately owned medical school, and in addition owns and operates one medical school, opened in 1956–57.

As of 1955–56, 13 States and the District of Columbia did not own and operate medical schools and did not give financial support to privately owned medical schools within their boundaries.

123. What have the States done recently to establish and support new medical schools?

Nine of the fourteen 4-year schools established since 1930–31 are now publicly owned. All 3 of the basic medical science schools now in the process of expanding their programs to a 4-year course are public schools. The proposed new school at the University of Kentucky is a public school. In New York State, 2 private 4-year medical schools were taken over by the State University. In 1956, Wayne University and its College of Medicine in Detroit became a Michigan State institution. The Southwestern Medical College established in 1943 as a private school became a branch of the State University of Texas in 1949.

124. How much do the States pay in support of medical school operations?

In 1956–57, the State contributions in support of medical school operations totaled approximately $52 million. Forty-seven schools shared in this amount. In the case of some schools, State contributions constituted less than 50 percent of operating budgets, while in the case of other schools State support amounted to over 90 percent.

Seven States (California, Illinois, Michigan, New York, Ohio, Pennsylvania, and Texas), which together account for 45 percent of the total civilian population of the United States contributed about $26 million. On the other hand, 13 States and the District of Columbia, which account for a

civilian population of 19.1 million or 12 percent of the total civilian population, did not contribute toward the operation of medical schools within their boundaries.

Ten States contributed between $1 and $2 million; 9 States between $700,000 and $1 million; and 9 other States between $100,000 and $700,000.

Pennsylvania, which contributed $5.3 million, provided more funds for the operation of the 6 privately-owned medical schools located within the State than were provided by any other State for its publicly owned medical schools. On the other hand, Massachusetts and New Jersey, with a total civilian population of over 10 million, do not own and operate medical schools and the four privately owned medical schools within their boundaries do not report any State contribution toward their operations.

REGIONAL PROGRAMS IN SUPPORT OF MEDICAL SCHOOLS

125. Are there any regional programs in existence for assisting medical schools?

Regional programs to assist medical schools (and also to aid medical students) are in existence in the West, the South, and the Northeast. A regional program is under study for the Middle West.

126. What are some of the purposes of regional educational arrangements?

Existing regional arrangements in the field of higher education usually cover professional education in medicine, dentistry, veterinary medicine, and in some instances public health and social work.

The purposes of existing regional arrangements with regard to medical education are to—

(1) save States which do not have medical schools from paying the costs of establishing new schools (which, in many cases, is not feasible because of unavailability of clinical resources, medical faculties, and medical students in a number sufficient to establish new schools);

(2) enable States which do not have medical schools to meet, at least partially, their obligation to provide training in the field of medicine;

(3) strengthen financially the receiving institutions and thereby enable them to improve their programs;

(4) give applicants residing in States which do not have medical schools a better chance of being admitted to medical schools located in States which participate in regional programs; and

(5) save students who reside in States which do not have medical schools substantial sums of money by permitting them to pay the lower medical school tuition fees for State residents charged by the medical schools which participate in the regional program.

127. How do the regional arrangements work?

The participating States share in the cost of financing the interstate organizations and enter into contracts under which students are sent from one member State to institutions in

other member States. The home States pay agreed upon amounts per student to the receiving institutions. The students attending under this program pay the same tuition fees as in-State students.

128. What schools can participate?

Both public and private institutions participate. The southern compact provides for the possibility of establishing new institutions to meet the region's needs if existing institutions do not have adequate facilities.

129. What is the Western Regional arrangement?

The Western Region includes the following States and Territories: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming, Alaska, and Hawaii. The program for the Western Region is administered by the Western Interstate Commission for Higher Education, which was established under an interstate compact in 1953.

Payments from the sending States to the schools are at the present time $2,000 per student annually in medicine, $1,600 in dentistry, and $1,200 in veterinary medicine. Some 200 students were attending professional schools under this program during 1955–56, and State payments amounted to $351,600.

130. What is the Southern Regional arrangement?

The Southern Region includes the following States: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. The program for the Southern States is administered by the Southern Regional Education Board, established under an interstate compact in 1949.

Payments from the sending States to the receiving schools at the present time are $1,500 a year for each student in medicine or dentistry, $1,000 a year for each student in veterinary medicine, and $750 a year for each student in social work. 347 students were attending medical schools under this program in 1955–56, and State payments amounted to $519,500.

Not all States participate in all educational programs. The States participating in the medical education program are Alabama, Florida, Georgia, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia. The medical schools participating in the program are Medical College of Alabama, Emory, Louisiana State University, Tulane, Duke, Wake Forest, Meharry, University of Tennessee, Vanderbilt, and the Medical College of Virginia.

The number of medical students who participated in the program rose from 174 in 1949–50 to a peak of 380 in 1952–53.

The number of students declined to 357 students in 1953–54, to 353 in 1954–55, and to 347 students in 1955–56. State payments based on the number of participating students likewise reached their peak with $569,000 in 1952–53, and thereafter declined to their present level of $519,500 for 1955–56.

131. What is the Northeastern Regional arrangement?

In the Northeastern Region, two different types of programs are in existence. Maine, New Hampshire, and Vermont have enacted enabling legislation which permits the State universities of these three States to contract with each other for higher education in the fields in which training is not provided by one of the contracting States. Under this arrangement, New Hampshire pays $2,000 per student to Vermont to share with that State the cost of educating four New Hampshire students in the University of Vermont College of Medicine. Although enabling legislation exists in Maine, no contract has been concluded.

The University of Vermont College of Medicine gives first preference to residents of Maine and New Hampshire after residents of Vermont. The University of Vermont has offered next preference to students who are residents of other New England States. As a result of these arrangements, 95 percent of the present enrollment of the University of Vermont College of Medicine comes from the New England area.

A second type of legislation which has been passed by all of the New England States, except Rhode Island, establishes by law the New England Board of Higher Education. Funds are appropriated by the participating States for the board to develop contracts for higher education among the various institutions in the New England area. This board is patterned on similar boards and commissions in the Western and Southern Regions.

132. What steps have been taken in the Midwestern Region?

The Midwestern Region includes the following States: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. The Midwestern Interstate Committee on Higher Education appointed a committee to consider the needs for interstate action in medicine, dentistry, and veterinary medicine. A progress report was made which concluded that no immediate formal interstate action, such as was undertaken by the Southern Regional Education Board, the Western Interstate Commission for Higher Education, and the New England Higher Education Compact, was needed in the midwestern area. It was decided to continue the committee and to explore areas of possible interstate cooperation. The current activity of the committee is devoted primarily to the training of qualified persons in the field of mental health.

PRIVATE PROGRAMS IN SUPPORT OF MEDICAL SCHOOLS

133. What private programs have been established for the purpose of aiding medical schools?

The National Fund for Medical Education, formed in 1949, was granted a Federal charter in 1954. Its purpose is to mobilize new sources of voluntary support for the Nation's medical schools. The Fund cooperates with the American Medical Education Foundation, established to secure support from physicians for medical schools.

Together, they have distributed among medical schools since 1951 about $9.6 million. About one-half of these funds was contributed by corporations and individuals, the other half by physicians. In 1954, grants totaled about $2.2 million, and in 1955, $2.7 million.

Awards are made to support the operating and teaching budgets, and may not be used for building and construction. Grants are made on the following basis: A uniform sum of $15,000 annually to each medical school, plus an annual award computed on the basis of $30 per undergraduate student. Special grants are available to meet unforeseen teaching needs, financial emergencies, and unusual problems.

Special efforts to aid medical schools are made by some of the industries directly concerned with the health field. For example, the manufacturing pharmaceutical industry in 1955 contributed $550,000 to such organizations as the National Fund for Medical Education. In addition, the industry contributed to individual medical schools $3 million for specifically defined research, clinical testing, or other specific projects, and $600,000 as unrestricted financial support for general purposes. (In the medical science and related fields, departments of biochemistry, pharmacy, bacteriology, biology, physiology, pharmacology, etc., during 1955 received $3.6 million for specifically defined research and $720,000 as unrestricted financial support. Organizations giving general support to these schools, such as the American Foundation for Pharmaceutical Education, received from this industry $430,000 in 1955.)

134. What are the foundations doing to aid medical schools?

Foundations in the past have contributed to medical schools. Among the larger foundations which have contributed to medical schools and medical education are the

Rockefeller Foundation, the Josiah Macy, Jr., Foundation, and the W. K. Kellogg Foundation. Recent grants of two foundations are of such magnitude that they are of special interest.

The Ford Foundation, in 1955, appropriated $90 million for endowment grants to privately supported medical schools to help strengthen their instruction. To date, following recommendations of its medical school grants advisory committee, the foundation has made grants of $500,000 each to 43 four-year schools and $250,000 to the 2-year medical school at Dartmouth College. These grants total approximately $22 million. In making further specific grants, no general formula will be used. The advisory committee will consider certain quality factors, and the committee's judgments with respect to these factors will determine the recipients and the amounts of the grants.

The terms of the grants provide that the principal is to be held as investment endowment for a period of 10 years, the income to be available for current instructional uses. The money may not be used for physical facilities or research. After the initial 10-year period, both principal and income may be freely expended for purposes of medical education. It has been estimated that privately supported United States medical schools will receive additional annual income of $3.5 million to $4 million from the foundation grants. In addition, the Ford Foundation granted $10 million to match contributions collected by the National Fund for Medical Education over a 5- to 10-year period.

The Commonwealth Fund, which recently has concentrated its activities particularly in the field of medical education, in 1955–56 appropriated $12.6 million in unrestricted grants to 19 universities in order to assist them in improving their programs of medical education. A large portion of this appropriation was taken from the capital of the fund.

FEDERAL PROGRAMS IN SUPPORT OF MEDICAL SCHOOLS

135. What is the Federal Government doing to aid medical schools?

While there is no one Federal program designed specifically to aid medical schools, there are a number of Federal programs which directly or indirectly provide support to medical schools. The primary aim of these programs is to provide funds on the basis of grants or contracts for research or training in particular health fields, or for the construction of facilities for hospital care and research. The financial impact of these programs on undergraduate and graduate teaching activities and on teaching facilities is difficult to measure.

136. Do the programs conducted by the Public Health Service aid medical schools in discharging their teaching responsibilities?

Increasingly, medical schools have been aided in discharging their teaching responsibilities by a number of programs administered by the Public Health Service. These programs are designed to promote progress in particular health fields. For example, undergraduate teaching grants in the fields of cancer, heart, and mental health are made for the purpose of promoting progress in these fields by establishing, expanding, and improving instruction in these fields. These grants have increased from $1.5 million in 1948 to $7.3 million in 1957.

In addition, graduate training grants are made to medical schools to assist the schools in establishing and maintaining graduate instructional programs in certain health research and clinical fields. Research fellowships are made available through medical schools for the support of individuals in training. Finally, research grants made to medical schools for the conduct of specific research activities indirectly aid the schools in maintaining an environment which is attractive for faculty members and students. These graduate training and research projects, in many instances, support some part of the salaries of personnel who do at least part-time teaching in medical schools.

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137. What facilities in medical schools and universities have been constructed under the Health Research Facilities Act?

The Health Research Facilities Act of 1956 (Public Law 835, 84th Cong.) provides for a 3-year program of $30 million annually to make matching grants for the construction of non-Federal health research facilities. Multiple-purpose facilities devoted to research, teaching, and rendering medical services qualify in proportion to the contemplated use of the facility for research. The share contributed by the Federal Government to the cost of these facilities constitutes an indirect contribution in support of medical schools and universities. Of a total of 80 grants made under this program (amounting to approximately $25 million), 46 grants were made to medical schools or hospitals owned by medical schools (amounting to approximately $17 million) and 7 grants (amounting to approximately $1.3 million) to independent institutions which are used by medical schools or universities for some of their medical education courses.

Under an earlier construction grant program for heart and cancer research facilities in 1948–50, the Public Health Service awarded a total of $22.3 million to private and nonprofit research institutions, including medical schools.

138. What facilities in medical schools and universities have been constructed under the Hill-Burton Act?

While facilities constructed under the Hill-Burton program are designed primarily to increase hospital facilities, some of the hospital, clinical, and auxiliary facilities constructed under this program at medical schools and universities are used incidentally for teaching purposes. To the extent that these projects also serve teaching functions in medical and dental schools and schools of nursing, the share contributed by the Federal Government to the cost of these projects constitutes an indirect contribution in support of these schools.

A total of 66 projects, costing approximately $164 million, have been constructed in medical schools and universities under the Hill-Burton program, inaugurated in 1948. The Federal share for these projects amounted to approximately $38 million. In addition, there have been 91 projects in facilities affiliated with medical schools and universities, totaling approximately $151 million, and 356 projects in teaching hospitals approved for intern and resident training, totaling approximately $576 million. The Federal share in these two categories amounted to approximately $32 million and $151 million, respectively.

139. Does the Housing and Home Finance Agency provide assistance to medical schools?

The Community Facilities Administration of the Housing and Home Finance Agency administers a college housing program. Pursuant to title IV of the Housing Act of 1950,

as amended, direct Federal loans at low interest rates may be made to assist institutions of higher learning in the development of housing and related service facilities where such assistance is not otherwise available on equally favorable terms. Medical, dental, and nursing schools may receive Federal loans under this program. As of July 31, 1956, seven medical schools received approved loans or reservations of funds under the program. The total amount lent to these schools is approximately $11.2 million.

COST AND FINANCING OF A MEDICAL EDUCATION

140. How long does it take to complete a medical education?

The minimum time required to complete a medical education in the United States is 8 years beyond high school. This period consists of 3 years of college, 4 years of medical school, and 1 year of internship; 75 percent of the freshman class of 1955–56, however, had 4 years in college. A medical education for certification as a specialist may take 12 years or more, consisting of 4 years of college, 4 years of medical school, 1 year of internship, and 3 years as a resident in an approved hospital.

141. How much does a medical education cost the student or his family?

Eight years of premedical and medical education costs approximately $13,200.

This breaks down as follows:

(1) The average cost of 4 years of college at a public institution is approximately $6,000.

(2) The median cost of 4 years of medical school is approximately $7,200.

In addition, consideration must be given to the net loss of income during 1 year of internship when the average cash stipend is $1,700 a year and 3 years of residency training carrying stipends of about $2,100 a year. When compared with typical earnings during those 4 years in the legal profession, for example, the net loss of income over this 4-year period amounts to approximately $13,000.

142. How do students finance their medical education?

Most of the funds for the single medical student are provided by parents. (It is reported that fathers of about one-half of the medical students are engaged in professional, executive, or managerial positions.) The chief source of support of married students is the earnings of working wives. It is noteworthy that the catalog published by the Association of American Medical Colleges on Admission Requirements of American Medical Colleges includes information with regard to most schools on employment opportunities for students' wives. Summer vacation and other part-time employment earnings, scholarships, loans, and investment income are the additional sources of funds.

STATE PROGRAMS IN SUPPORT OF MEDICAL STUDENTS

143. What are the States doing to aid medical students?

Several States have established publicly financed programs to give to residents who want to study medicine financial assistance in the form of loans or scholarships. Several of these programs require that recipients must in return serve for some period of time in a rural area of the State or render service in some other specified way.

144. What is the program in Mississippi?

The Mississippi State scholarship loan program is probably the most extensive of all State programs designed to aid medical students. It was established in 1946 to meet the physician shortage in Mississippi, and has been in effect since then.

The maximum loan per school year is $1,250, and loans to any student may not exceed a total of $5,000 for 4 years. To be eligible, a person must be a bona fide resident and citizen of Mississippi; have completed premedical work; be acceptable to the University of Mississippi School of Medicine; be in need of financial assistance; and be willing to contract to engage in the general practice of medicine for a period of from 2 to 5 years in a rural area in Mississippi (defined by law as communities with populations of 5,000 or less). A 1952 amendment allows assignment, in reasonable number, to Mississippi's mental institutions. However, only one physician has been assigned annually under this amendment.

After a period of 5 years of general practice in a rural area, the loan is canceled in its entirety. After a minimum practice of 2 years, the borrower is credited with two-fifths of the amount borrowed, plus interest thereon, and may repay in cash the remaining three-fifths plus 4 percent interest thereon. Cash payment in lieu of service, while legal, is not encouraged.

The original appropriation for the period 1946–48 was $300,000. The 1954–56 appropriations amounted to $475,000. Total appropriations for 1946 to 1958 have amounted to $2,635,000 plus $150,000 for administration.

A total of 341 students have completed their fourth year of medical study under the scholarship loan program. Seven students have completed in full the obligation to practice for 5 years in rural areas, while 191 others are in general

practice in those areas in accordance with the terms of their obligations. Twenty-one students have repaid or are repaying in cash the remaining three-fifths of their loan plus interest, after having received credit for the minimum practice period of 2 years. Twenty-six students have broken their contracts either by moving to other States (6), by entering specialized training (13), by practicing in unapproved locations in the State (4), or by interning in unaccredited hospitals (2). Of the 26 students who broke their contracts with less than 2 years' practice, 24 are repaying their loans plus interest. Only 2 students owe the full amount of the loan.

The program is administered by the State Medical Education Board consisting of 5 members, 3 of whom are ex officio members and 2 of whom are appointed by the Governor. The ex officio members are the dean of the Medical School of the University of Mississippi, the executive officer of the State Board of Health, and the president of the Mississippi State Medical Association.

While the program at the present time channels from 40 to 50 doctors into rural practice each year, it still does not offset the number of doctors lost by death. In 1954 there was a net loss in the State of 5 physicians. However, since the institution of the program, the percentage of all Mississippi physicians 60 years of age or older was reduced from 46 percent to 31 percent.

145. What is the program in Alabama?

Alabama established in 1943 a county scholarship program. Under this program, the Board of Trustees of the University of Alabama was authorized and required to establish a scholarship for each county in the State of Alabama in the amount of $400 per year for the benefit of one resident of each county. The scholarships are paid from the annual appropriation to the school of medicine.

Until 1953, no requirements with regard to service were attached to the scholarships. In 1953, however, the legislature required that recipients of a county scholarship shall agree, upon graduation, to practice in their county for such period of time, not exceeding 5 years, as prescribed by the Board of Revenue, Court of County Commissioners, or other governing body of the county.

The number of students who received scholarships and who signed agreements was 46 in 1953–54, 48 in 1954–55, and 48 in 1955–56.

In 1953, the State legislature also established six State scholarships at the Alabama Medical College. The maximum amount of the scholarship is $1,250 in any 1 year and is not to exceed $5,000 in its entirety. The law provides that preference in the granting of scholarships shall be given to the six applicants with the highest weighted scholastic averages in approved undergraduate colleges provided they are persons of high integrity. No more than 2 scholarships may be approved from any 1 county of the State.

Each recipient of a State scholarship must enter into an agreement with the State Board of Health to practice medicine for 5 years, after the completion of his medical training, in an area or locality in the State designated by the State Board of Health, or else to forfeit and become liable immediately to the State for the amount granted him under his scholarship. If a recipient practices medicine in the designated area for only a part of the 5 years he is to forfeit and be liable to the State only for such portion of the amount granted him as the State Board of Health shall determine. The Attorney General, upon request of the State Board of Health, is directed by law to institute proceedings in the name of the State for the purpose of recovering any amount due to the State from any recipient of a scholarship.

146. What is the program in North Carolina?

In 1945, North Carolina established a rural loan program under which a $50,000 revolving fund has been set up for the purpose of aiding medical students. Maximum loans are $1,200 per year, or $4,800 for 4 years. Loans are repayable beginning 6 months after completion of internships, and interest at the rate of 2 percent is charged. To be eligible for a loan, a recipient must have been a resident of North Carolina for a period of 8 years. The recipient must agree upon completion of training to practice for a period of at least 4 years in North Carolina rural areas or small towns of less than 2,500 population.

In 1953, the program was extended to include loans to students of medicine and nursing who would agree following completion of their training to serve for designated periods in one of North Carolina's four State-owned mental hospitals. The amount of 1 year's loan plus interest is canceled for each 12 months of satisfactory service rendered to an eligible State hospital.

To date, 123 students of medicine, dentistry, pharmacy, and nursing have received loans. Included are 13 students under the State mental hospital program, and the balance under the rural loan program. Thirteen recipients are now practicing medicine in rural areas, while others are in the process of completing their training or are interning. Since approximately 6 years elapse between the time a loan is first made and the time a recipient is ready for service, it is expected that the next few years will show a steady increase in the availability of physicians for service in rural areas of North Carolina and in eligible State-owned mental hospitals.

147. What are the programs in some other States?

The State of New York has a State scholarship program for professional study in medicine. The scholarship is worth $750 per annum and runs for 4 years. It is awarded after a competitive examination. Approximately 37 scholarships have been awarded each year.

The State of South Carolina annually awards eight State scholarships. These are usually awarded to upperclassmen on the basis of academic standing. They are distributed as follows: One to each of the 6 Congressional districts; 2 to the State at large.

The State of Virginia, since 1944, has provided annually 20 rural physician scholarships of $1,000 each per year at medical schools in the State of Virginia, and 10 such scholarships at Meharry Medical College, Nashville, Tenn. A recipient of such a scholarship is required to serve in a rural community in Virginia for a period of years equal in number to the years for which he received a scholarship. Service in a Virginia mental institution is equivalent to practice in a rural area.

The State of Georgia reports the availability of a limited number of scholarships and loans awarded annually by the State Medical Education Board.

The State of Vermont provides annually fifty $200 scholarships, which carry with them the obligation to practice in the State of Vermont for 1 year for each year a scholarship is accepted. As an alternative, the recipient must refund to the university the amount of the scholarship. Forty-five students are currently taking advantage of this plan.

PRIVATE PROGRAMS IN SUPPORT OF MEDICAL STUDENTS

148. Are there privately financed statewide plans to aid medical students?

Privately financed programs to assist residents who desire to study medicine have been established in several States. Most of these plans require that the recipient of a loan or a scholarship must in return serve for some period of time in a rural area of the State or render service in some other specified way. The following programs are illustrative.

149. What is the program in Kentucky?

The University of Louisville School of Medicine in cooperation with the Kentucky State Medical Association sponsors the Rural Kentucky Medical Scholarship Fund. Contributions were solicited and received from individuals and organizations, including various county medical societies. The fund is actually a loan fund from which medical students may receive loans of up to $800 per year (which represents the current tuition at the University of Louisville Medical School). Recipient must agree to practice in a county selected by the State Board of Health for a period of 1 year for each year of support. Selection of the county is made on the basis of a formula which takes into consideration the physician-population ratio and the age of the doctors practicing in the counties. To date, 100 students have participated in the program. Of the 58 students who have graduated only 3 failed to fulfill their service obligations.

150. What is the program in Iowa?

The Iowa State Medical Society assessed its members $10 a year for 5 years for the purpose of establishing the Iowa State Medical Society Educational Fund. The fund makes loans of a maximum of $2,500 per year or $6,000 for 4 years. Loans must be repaid beginning with the start of the third year of general practice. Recipients must agree to go into general practice after serving their internship, and to practice for a period of 3 years in a rural community in Iowa. Twenty students are now participating in the program.

151. What is the program in Illinois?

In 1948, a student loan fund was created by agreement between the Illinois State Medical Society and the Illinois Agricultural Association. Students may borrow up to $1,250 per year or $6,000 for 4 years. Borrowers must agree to practice medicine for 5 years, not later than 2 years after graduation from medical school, in an Illinois county in which the services of a physician are needed. No interest is charged if the student completes his 5 years of service. If he fails to do so, he is charged interest at the rate of 7 percent per year from the original date of each loan. During 1955–56, 23 medical students received loans from this fund.

152. What other private loan and scholarship programs are available to medical students?

Most medical schools have a school loan or scholarship program. The terms vary from school to school. Usually, no service requirement attaches to the loan or scholarship. In 1954–55 scholarships at approved medical schools totalled $1.2 million, and student loan funds $2.3 million.

Special efforts to aid medical students are made by some of the industries directly concerned with the health field. For example, the manufacturing pharmaceutical industry in 1955 contributed $470,000 for 480 medical school fellowships or scholarships and $720,000 for 240 scholarships and fellowships in related fields (such as biochemistry, pharmacy, bacteriology, biology, physiology, pharmacology, etc.). It is estimated that the manufacturing pharmaceutical industry covers the expenses of about 1 student in the medical and allied sciences for every 5 such graduates employed in the industry.

FEDERAL PROGRAMS IN SUPPORT OF MEDICAL STUDENTS

153. What is the Federal Government doing to aid undergraduate medical students?

There are several Federal programs under which financial assistance is given to undergraduate medical students. The programs differ in their objectives. Some are designed primarily to aid certain classes of students, as in the case, for example, of the GI bill of rights. Others are designed to attract students during their undergraduate years into certain fields of medicine, as, for example, into medical research. Still others are designed to secure additional physicians for particular departments and agencies of the Federal Government, as in the case, for example, of the Department of Defense.

154. What is the program of the Veterans' Administration in support of undergraduate medical students?

Large numbers of undergraduate students (and graduate students as well) enrolled in medical schools in recent years received benefits under the GI bill of rights, the Korean GI bill of rights, and the World War II disabled veterans' legislation. The exact number of undergraduate (and graduate) medical students who were thus benefited is not known. However, it has been reported that over 70 percent of undergraduate male medical students enrolled during 1947–48 to 1949–50 received educational benefits under the aforementioned World War II veterans' laws.

155. What is the program of the Public Health Service in support of undergraduate medical students?

The Public Health Service supports undergraduate medical student training through a limited program which provides funds for part-time research by outstanding students selected by the schools for such training.

156. What is the program of the National Science Foundation in support of undergraduate medical students?

The National Science Foundation has a program for support of short-term research by medical students. Through this program, grants are made to medical schools which, in

turn, award short-term stipends (2–3 months) to selected medical students, who are in this way afforded an opportunity to engage in basic research during the summer vacations or at other times. During the 1956–57 fiscal year, $175,000 is allocated to this program, as compared with $60,000 during the last 2 fiscal years.

157. What is the program of the Department of Defense in support of undergraduate medical students?

The Department of Defense, for each of its three services, has a senior medical student program. Its principal purpose is to supply additional physicians for the services. This program permits a senior medical student to be commissioned and draw active duty pay and allowances during his final year in medical school. In return, the student agrees to serve 3 years on active duty. This program is limited to 200 students for each branch of the armed services, and all available commissions have been granted.

In addition, the Air Force had an experimental junior medical student program scheduled to be discontinued after 1956. Under this program, a student had to agree to serve 4 years on active duty instead of 3 years. The program was limited to 200 students.

158. What is the Federal Government doing to aid graduate medical students and to provide training in special fields of medicine?

The major programs of the Federal Government designed to assist medical students are aimed at the graduate and postgraduate level, as distinguished from the undergraduate level. Extensive general programs of this type are administered by the Department of Health, Education, and Welfare (traineeship, fellowship, and training grant programs) and by the National Science Foundation. A specialized fellowship program is offered by the Atomic Energy Commission in health fields associated with the Atomic Energy program. The Department of Defense sponsors a program of Medical Education for National Defense for the purpose of encouraging the teaching of principles of military and disaster medicine by regular faculty members of medical schools to undergraduate medical students.

PLANS FOR EXPANSION OF MEDICAL SCHOOL TEACHING FACILITIES

159. If legislation were enacted providing for Federal matching grants for the construction of teaching facilities, how many medical schools would expect to apply for grants under such legislation?

All but a few of the 83 medical schools that have replied to date to a questionnaire report that they would apply for grants under Federal legislation designed to assist in the construction of teaching or research facilities.

160. What would be the cost of the contemplated facilities?

The medical schools replying to a questionnaire report that, if Federal aid becomes available, construction projects costing approximately $400 million would be undertaken in the next 5 years.

161. How much would be spent for new facilities?

About 70 percent of the total would be spent for new facilities, and 20 and 10 percent, respectively, for the expansion and rehabilitation of existing facilities.

162. Would these facilities be used exclusively for teaching purposes?

No; they would be used for research as well as teaching purposes. The schools have furnished estimates on the extent to which the contemplated facilities would be used for teaching and research, respectively. These estimates vary from a high of 81 to 100 percent chargeable to teaching (reported by 5 schools) to a low of 10 to 20 percent (reported by 4 schools).

163. How much of the total cost of the planned facilities would be chargeable to teaching?

Of the total cost of $400 million, about three-fifths would be chargeable to teaching and two-fifths to research.

164. What is the age of the present basic sciences buildings used by medical schools?

The basic sciences buildings at 6 medical schools were built between 1845 and 1878; 12 buildings, between 1879 and 1904; 31 buildings, between 1905 and 1930; 29 buildings, between 1931 and 1956; and 2 buildings are under construction.

165. How do the medical schools expect to raise required matching funds?

The medical schools report that they would seek to secure matching funds from one or more of the following sources, depending to a considerable extent on the public or private character of the institution: Individual bequests (37 schools); State governments (32 schools); philanthropic foundations (18 schools); alumni (14 schools); institutional building funds (11 schools); local industrial concerns (9 schools); public subscriptions (4 schools); church organizations (3 schools); and the local county (1 school).

166. How do the medical schools expect to meet increased costs of operation and maintenance occasioned by the new facilities?

The medical schools report that they would attempt to meet any increased operating and maintenance costs resulting from expansion of existing facilities and construction of new facilities from the same sources from which they expect to secure matching funds for Federal grants. However, in addition to the sources mentioned in that connection, some of the schools expect to meet any increased expenditures from increased institutional funds and tuition (28 schools); increased overhead on research grants (15 schools); increased endowment income (6 schools); increased support from regional agreements (2 schools); and local funds (1 school).

167. Will the additional facilities enable the medical schools to increase their enrollment?

If existing facilities can be expanded and new facilities constructed with the aid of Federal funds, two-thirds of the reporting medical schools expect to increase their first-year class enrollment by 1,050 to 1,150 students. One-third of the schools report that they expect no increase in their enrollment; 17 schools report possible increases ranging from 1 to 10 additional freshmen students, 17 schools from 11 to 20 additional students, and 21 schools over 21 additional students.

PART TWO

DENTAL AND DENTAL HYGIENE SCHOOLS

CONTENTS—PART TWO

DENTAL AND DENTAL HYGIENE SCHOOLS

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SUMMARY—DENTAL AND DENTAL HYGIENE SCHOOLS

DENTAL AND DENTAL HYGIENE SCHOOLS—PRESENT AND FUTURE CAPACITY

There are 45 dental schools in the United States today. Ten years ago there were 39 dental schools. Approximately 13,000 dental students are now enrolled in the 45 schools. Ten years ago there were fewer than 8,500 students attending 39 schools. However, during the preceding 15-year period from 1930 to 1945, when the population in the United States increased from approximately 123 million to approximately 140 million, the number of schools remained unchanged and there was no increase in enrollment.

Of the 45 dental schools, 17 are publicly controlled and 28 are privately controlled. Three of the six new schools established since World War II are public schools, and three are private schools. The new schools account for about 13 percent of the postwar enrollment increase. Already existing public schools account for 37 percent of the postwar enrollment gain, and existing private schools for 50 percent.

In 1955–56, of approximately 7,200 applicants for admission to dental school, less than half were accepted. Accepted applicants filled freshman classes to capacity. The American Dental Association has estimated that, unless a significant expansion beyond that now contemplated takes place in dental school facilities, the ratio of applicants to places available may rise as high as 4 or 5 to 1 within the next 10 years.

Dental hygienists, who can relieve dentists of tasks which consume as much as a quarter of their time, are trained today in 34 dental hygiene schools. Ten years ago only 16 schools trained dental hygienists.

Of the 34 dental hygiene schools, 19 are public schools (an increase of 13 during the last 10 years) and 15 are private schools (an increase of 5). Thirteen of the public dental hygiene schools and 12 of the private dental hygiene schools are affiliated with dental schools.

During the last 10 years, the number of dental hygiene students tripled, increasing from about 680 to about 2,000. Two-thirds of this increase has been in public schools (where enrollments rose from less than 250 to 1,100), and one-third in private schools (where enrollments rose from 450 to 900).

DENTAL AND DENTAL HYGIENE GRADUATES AND REQUIREMENTS

The number of graduates from United States dental schools has risen steadily during recent years. The most recent graduating class was twice the size of the last pre-World War II class and 20 percent

larger than in 1950–51. Yet, even with this increase and the contemplated future increases, the number being graduated is not great enough to replace dentists who die or retire and to keep pace with population growth.

The number of active dentists per 100,000 persons has fallen steadily during the past 25 years. In 1930 there were 58 active dentists per 100,000 persons. By 1955, this number had fallen to an estimated 46. To restore the 1930 service level at this time would require an additional 19,000 dentists. The American Dental Association has estimated that two new schools (or the equivalent expansion of existing schools) would be needed in each year from 1957 to 1971 in order to assure that the 1955 ratio would prevail in 1975.

The number of dental hygiene graduates has risen rapidly during the postwar period. Ten years ago, fewer than 350 were being graduated; now there are nearly 900 graduates, and further increases are anticipated.

There are now an estimated 52 active hygienists for every 1,000 practicing dentists. Hygienists are still largely concentrated in the Northeast, however, where dental hygiene schools were first established. As a result, the ratio of hygienists to dentists is about twice as great there as it is elsewhere (79 per 1,000 dentists, as compared with 36 per 1,000 in the remainder of the country).

DENTAL AND DENTAL HYGIENE SCHOOLS AND STUDENTS—FINANCIAL ASPECTS

Dental and dental hygiene school budgets for 1956–57 total an estimated $32 million; this is nearly double the amount spent in 1949–50 by the schools then in operation.

A part of this increase reflects the opening of additional schools. However, per student costs have risen sharply, from an average of about $1,300 in 1949–50 to approximately $2,200 at the present time.

A smaller and smaller share of the schools' operating expenses is met from tuition income. In 1956–57, tuition income covered only 23 percent of the operating costs of dental schools. For additional revenue, private schools are largely dependent on clinic income and university transfers, and public schools on State support.

Income from other sources, such as endowments, gifts, and grants, met slightly less than 5 percent of the basic operating expenses of private schools in 1949–50, and but 1.2 percent of the public schools' expenses.

The 16 States which operate public dental schools contribute more than one-half of the operating expenses of these schools. Except for participation in regional arrangements, no public funds are contributed by the remaining 32 States and by the District of Columbia. Foundations and other private organizations provide but little financial assistance for the privately operated dental schools.

There are two regional programs under which States without dental schools send students to schools in member States, reimbursing the receiving school for at least a part of the costs incurred.

Federal programs are aimed at providing training in particular health fields, promoting dental research, constructing research facilities, extending educational benefits to veterans, and providing addi-

tional health personnel for Federal service. These programs provide a limited amount of indirect aid for dental education.

If legislation providing for Federal matching grants for the construction of teaching facilities is enacted, nearly all schools report that they would apply for such grants. Their estimated needs total approximately $77 million. With these additional facilities, it is reported that an increase of 400 to 450 freshman students could be accommodated. In addition, 10 schools would inaugurate training programs for dental hygienists and 15 schools would expand facilities already existing for the training of auxiliary personnel.

I. DENTAL SCHOOLS—PRESENT AND FUTURE CAPACITY

TRAINING CAPACITY IN THE UNITED STATES

1. How many dental schools are there in the United States?

There are 45 dental schools in the United States today, including 3 new schools which have not yet produced a graduating class. The College of Medical Evangelists in California will graduate its first class in 1957. Seton Hall and Fairleigh-Dickenson Colleges in New Jersey accepted their initial freshman classes this fall.

2. How many of the dental schools are privately controlled and how many are publicly controlled?

Seventeen dental schools are supported by State or city appropriations; 28 are privately supported.

3. Has the number of dental schools been increasing?

The number of schools in operation today is no larger than it was during the 1920's. The elimination of substandard schools during that decade and the closing of an additional school during the prolonged depression of the 1930's resulted in a sharp curtailment in training capacity, which has not yet been overcome. By 1940, the number of schools had decreased to 39 from the 46 in operation 20 years earlier.

In the decade since the end of World War II, 6 schools have been established, raising the total from 39 to 45. The University of Washington opened a new dental school in the fall of 1946; the University of Alabama in 1948; the University of North Carolina in 1950; the College of Medical Evangelists in 1953; and Seton Hall and Fairleigh-Dickenson Colleges in 1956.

4. Are new dental schools being established?

Yes. In addition to the 3 schools which have not yet graduated a class, concrete plans are in existence for 5 other schools. A State-supported dental school is scheduled to open in West Virginia in 1958. Although no opening date has yet been indicated, funds have been appropriated by the

Colorado State Legislature for the construction of a school. A third State-supported school is under consideration in South Carolina, where the budget submitted to the legislature includes a request for funds for construction of a school. Fairly firm plans also exist for a school of dentistry at the University of Kentucky and the University of Puerto Rico, where the first freshman class will probably be enrolled in 1957.

5. Are the new schools primarily publicly or privately owned?

Of the 6 new schools established since the end of World War II, 3 are publicly owned and 3 are privately owned. The 5 schools now in the planning stage will be publicly owned.

6. How many dental students are there?

In 1955–56, there were 12,730 undergraduate students enrolled in 43 dental schools. Of this total, 4,787, or 38 percent, were enrolled in publicly controlled schools and 7,943, or 62 percent, in privately controlled schools.

7. Do students other than undergraduate dental students attend dental schools?

Yes. During 1955–56, a total of 2,538 "other students" attended dental schools. This group consisted of 1,224 dental hygiene students, 748 postgraduate students not seeking degrees, 425 graduate students seeking advanced degrees, and 141 special students.

8. Has the number of dental students been increasing?

Enrollment has been increasing steadily since the end of World War II. In 1955–56, total undergraduate dental school enrollment was more than half again as large as 10 years earlier. There was no increase in enrollment, however, during the preceding 15-year period from 1930 to 1945.

9. How much of the increase in total enrollment reflects the opening of new dental schools?

Of the total enrollment increase during the decade ending in 1956, about 87 percent was accounted for by the expansion of existing dental schools and only 13 percent by the opening of new schools. By 1955–56, nearly half of the 39 dental schools in existence 10 years earlier had increased their enrollment by more than 50 percent, while only 4 schools reported enrollment increases of less than 10 percent. The average enrollment in these 39 dental schools, which was 212 in 1946–47, had climbed to 304 in 1955–56.

10. How much of this increase in enrollment took place in public schools and how much in private schools?

About 46 percent of the total increase in enrollment resulted from the growth of public school training capacity—37 percent from the expansion of existing public schools and 9 percent from the establishment of new public schools. Average enrollment in the 14 public schools in existence at the end of World War II rose from 184 at that time to 296 in 1955–56.

About 54 percent of the total enrollment increase took place in private schools. Enrollment in the 25 private schools in existence at the end of the war increased from an average of 228 in 1946–47 to an average of 312 in 1955–56. Enrollment in existing private schools accounted for 50 percent of the total gain in dental school enrollments. New private schools accounted for the remaining 4 percent of the total gain.

11. What is the size of freshman classes at present in the various schools?

The average size of freshman classes in 1955–56 was 80 students. Twenty-seven schools reported having freshman classes of 50 to 100 students; 11 schools reported having more than 100 freshmen; and 5 reported having fewer than 50 freshmen.

12. How do public and private schools compare as to the size of freshman classes?

The average size of freshman classes in public and private schools is about the same (79 and 81, respectively).

13. Has the number of freshmen enrolled in dental schools increased?

Yes. The number of freshmen enrolled in dental schools has risen by about 16 percent during the post-World War II period and by 39 percent since the start of that war. The freshman class entering dental schools immediately before the war (1941–42) contained only 2,476 members and the first postwar class (1946–47), 2,976 students. These figures compare with the 3,445 freshmen admitted in 1955–56.

14. Has this increased enrollment been distributed fairly evenly among all schools?

All 14 of the public schools which were in existence at the start of the war and 19 of the 25 private schools then in operation reported larger freshman classes in 1955–56 than in the year before the war. In all, there were 23 schools (10 public and 13 private) which reported freshman enrollment

increases of 25 percent or more. Of these, a total of 14 reported gains of better than 50 percent, and in 5 of these freshman admissions had more than doubled.

15. Have existing dental schools reached their capacity?

All schools are operating at or very near capacity, and a number report serious overcrowding. Any further expansion in existing schools is reported to require both greatly enlarged physical facilities and additional teaching staffs.

TRAINING CAPACITY—UTILIZATION OF FOREIGN SCHOOLS

16. How much additional training capacity for United States dental students do foreign schools provide?

The number of United States dental students studying in foreign schools is negligible. In 1956, there were 39 United States dental students studying in Canada, as compared with 17 in 1948.

SUPPLY OF APPLICANTS—NATIONALLY

17. How many students apply for admission to dental schools?

There were 7,205 applicants for admission to United States dental schools in 1955–56.

18. How many applicants were accepted?

In 1955–56, 3,445 applicants were accepted—2,109 in private schools and 1,336 in public schools.

19. What is the present ratio of applicants to students admitted?

There were 2.1 applicants for each freshman student admitted to dental school in 1955–56.

20. Has this ratio remained the same over the years?

No, it has not. Immediately following World War II, returning veterans created an extremely large pool of applicants. For the 1947 freshman class, for example, an estimated 10,300 applicants sought admission to dental schools, and the ratio of applicants to freshman places available stood at 3 to 1. By 1953, as the supply of applicants diminished, the ratio declined to 1.5 to 1. Since 1953, there has been a steady increase in the number of applicants, and the ratio has increased to 2.1 applicants per student accepted at the present time.

21. How will the expected increase in the number of college graduates affect dental schools?

Unless a significant expansion takes place in dental school facilities, dental schools will be able to accommodate a much smaller proportion of those applying for admission than they do now. The American Dental Association has estimated that the ratio of applicants to places available may rise as high as 4 or 5 to 1 within the next 10 years.

22. What is the ratio of applicants per 100,000 population nationally?

In 1955–56, there were 4.4 applicants to dental schools for every 100,000 persons in the United States population.

23. What is the training capacity per 100,000 population nationally?

In 1955–56, there were 2.1 freshman places per 100,000 population nationally.

24. What is the capacity of public and private schools per 100,000 persons?

The number of freshman places in public schools in 1955–56 was equivalent to 0.8 per 100,000 population and in private schools, to 1.3 spaces per 100,000.

TRAINING CAPACITY AND SUPPLY OF APPLICANTS—STATE AND REGIONAL VARIATIONS

25. Where do most of the applicants come from?

About half of all dental school applicants come from nine States. New York and California lead, furnishing about 20 percent of the applicants, although they include only 17.5 percent of the Nation's population. Next in order are Pennsylvania, Ohio, Illinois, and Michigan, which furnish 22 percent of the applicants and have 22 percent of the population. Texas, New Jersey, and Massachusetts follow, furnishing about 10 percent of the applicants, although they include approximately 11.5 percent of the population.

26. Does the ratio of applicants to population vary materially from one region to another?

The West has the largest number of applicants per 100,000 population (5.1), and the Northeast the next largest number (4.1). The number of applicants per 100,000 population in the South is 4.0 and in the North Central area is 3.9.

27. Do schools with residence restrictions receive relatively fewer applications than schools without such restrictions?

Yes, schools which restrict admissions generally receive fewer applications in relation to the number of places available in their freshman classes. Public schools, most of which have residence restrictions, received 4,356 applications in 1955 for 1,336 freshman places—a ratio of 3.3 to 1. The application-acceptance ratio in private schools, on the other hand, was 5.2 to 1, with 10,866 applications received for 2,109 freshman spaces.

28. How are dental schools distributed geographically?

There are 45 dental schools in the United States. Thirteen are located in the Northeast, 16 in the north central region, 8 in the South, 2 in the Southwest, and 6 in the Far West. California has 4 dental schools; Illinois, Missouri, New York, and Pennsylvania have 3 each, and the District of Columbia, Massachusetts, Michigan, Nebraska, New Jersey, Ohio, Tennessee, and Texas have 2 schools each. States with one dental school include Alabama, Georgia, Indiana, Iowa, Kentucky,

Louisiana, Maryland, Minnesota, North Carolina, Oregon, Virginia, Washington, and Wisconsin. There are 23 States that have no dental school.

29. How is the training capacity distributed geographically?

The North Central region leads in training capacity with 2.6 freshman places per 100,000 population. The Northeast ranks next with 2.1 places and the West and the South trail with 1.8 and 1.5 places, respectively, for every 100,000 persons. Among the 25 States with dental schools, ratios range from a high of 6.0 per 100,000 persons in Missouri to a low of 1.2 per 100,000 persons in North Carolina.

30. How is the training capacity of public schools distributed geographically?

There are no public schools in New England, and in the entire Northeast, only 0.3 public school places are available for every 100,000 persons. The West has 0.9 public school places available per 100,00 population and the South and the North Central region have 1.0 and 1.1 places respectively.

Private school training capacity, on the other hand, is greatest in the Northeast, where there are 1.9 freshman places available per 100,000 persons. The North Central States, with 1.5 places per 100,000 population, rank next, and the West and the South, with 0.9 and 0.5 places, respectively, have the smallest private school capacity.

31. Do fewer freshmen in relation to State population come from States without dental schools?

In 1955–56, there were relatively fewer freshman dental students from States without dental schools than from those with schools (1 freshman for every 49,194 persons, as compared with 1 for every 48,406 in States with schools).

ADMISSION POLICIES

32. What are the qualifications for admission to dental school?

The Council on Dental Education of the American Dental Association has prescribed certain minimum requirements for admission to dental schools. These requirements include 30 semester hours of required subjects and 30 semester hours of electives. Although most dental schools accept applicants with the minimum requirement, many recommend that applicants, when possible, acquire a more extensive preprofessional educational background. Seven dental schools now require a minimum of 3 years of preprofessional education. Actually, in 1955–56, 76 percent of all dental students had completed at least 3 years of preprofessional college training, and 49 percent had completed 4 years or more.

33. How many applicants fail to meet the basic educational qualifications for entrance to dental school?

There is no information concerning the educational qualifications of candidates rejected by the schools. However, some of those rejected are known to be applicants of high academic standing who seek admission after having completed only 2 years of college work. They reapply and are accepted in a later year after completing additional preprofessional training.

34. Is there a generally recognized standard for testing the educational aptitude of applicants?

A dental aptitude test sponsored by the Council on Dental Education of the American Dental Association is now required of all applicants to dental schools.

35. Do dental schools attract outstanding college graduates?

Although no specific information is available concerning the scholastic achievements of dental-school applicants, it has been estimated that the average applicant today ranks in the top one-sixth of college students. The generally high level of mental ability of students applying to schools of dentistry is indicated by the fact that they are at the 80th percentile of college and university freshmen, as measured by a nationally used psychological examination (Thurstone).

36. Are there special residence restrictions governing admissions to dental schools?

Preferential consideration based on the State or area of residence of applicants exists in many dental schools. All 16 State-supported schools give priority to in-state applicants, and 3 of these schools give second priority to applicants from adjacent areas.

In addition, two privately supported schools give priority to students from specific geographic areas, and several private schools give preference to applicants from States which have no dental schools.

37. What is the actual enrollment of residents and nonresidents?

In the 1955–56 school year, 82 percent of the freshmen in publicly supported schools were home-State students but only 52 percent of those in privately supported schools were from within the State. In 9 of the 17 public schools, more than 90 percent of all freshmen were State residents. Only 2 public schools had a freshman class including less than 70 percent within-State students.

38. Why are residence restrictions found in dental schools?

Residence restrictions or preferential consideration on the basis of residence are found primarily in the schools supported by public funds. This policy reflects the widely held philosophy that priority should be given to the States' legal residents, whose taxes have contributed to the schools' support. Many of these schools accept a limited number of nonresidents. The tuition for nonresidents is generally higher than for residents.

39. Do schools with residence restrictions have relatively more students who made lower grades in their entrance examinations?

No information is available concerning the relative qualifications of students in the different schools. It seems likely, however, that schools with very rigid residence requirements find it necessary to fill at least some of the spaces available with applicants who are less qualified than nonresidents who might have applied had admission policies been less restrictive.

II. DENTAL SCHOOLS—GRADUATES AND DENTIST REQUIREMENTS

GRADUATES FROM DENTAL SCHOOLS IN THE UNITED STATES

40. How many students graduate from dental schools?

A total of 3,081 students were graduated in 1955. Of this total, 1,176 students were graduated from public schools and 1,905 from private schools.

41. Has the number of graduates been increasing?

Yes, the number has risen steadily during the past few years. As a result, the 1955 graduating class was nearly double the size of the last pre-World War II class, and was 20 percent larger than the 1950 class. However, despite this recent increase, the number being graduated now is no greater than it was during the 1920's.

42. Has the number of graduates been increasing as rapidly as the population?

No. There has been some improvement in recent years, but while the number of graduates per 100,000 persons has edged up from 14.1 in the thirties to an average of 17.7 during the fifties, the number is not yet great enough to meet the needs arising from population growth, and at the same time replace older dentists who die or retire. The current ratio is considerably less favorable than those which obtained during the first three decades of the century. During the 1920's, 21.0 dental students were graduated per 100,000 persons; from 1900 to 1920, the ratio was 25.0 per 100,000. Since 1929, the population has grown by more than a third, while the number of graduates has increased by only a fourth.

43. Is it expected that the number of dental school graduates will continue to rise?

Yes, the 3 most recently established schools will add a minimum of 150 graduates to the annual total, and the 2 State schools soon to begin operations will probably add at least another 100 graduates. Altogether the total number of graduates can be expected to rise to about 3,360.

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44. What is the trend expected to be after 1960?

The most favorable assumption under existing circumstances would envision an increase in the number of graduates to perhaps 3,500 during the early 1960's, with little expansion beyond that level possible without more schools or a major expansion of the physical facilities of existing schools.

45. Will the increases now contemplated restore the ratio of students to population to the predepression level?

No, they will not. Even if the number of graduates were to rise to 3,500 by 1965, the schools will be turning out about 18.7 graduates per 100,000 population, an improvement over the current ratio but still materially below the figures for the pre-1930 period (23.4 on the average).

NUMBER OF DENTISTS

46. How many dentists are there in the United States?

In 1955, the total number of dentsists in the United States (excluding dentists graduated in that year) was 94,511. Of these, an estimated 75,757 were active, non-Federal dentists serving the civilian population; 7,222 were in the Armed Forces or other Federal service, and the remainder were either retired or inactive in the profession for other reasons.

47. How many dentists are there per 100,000 population?

In 1955, there were 46 active non-Federal dentists for every 100,000 persons in continental United States.

48. Has the number of dentists per 100,000 population been increasing?

No; it has not. The number of dentists per 100,000 population has fallen steadily for the past two and one-half decades. During the 1930's, there were not enough dentists entering the profession to replace losses due to deaths and retirement. As a result, fewer dentists were in practice when World War II began than there had been in 1930. Since World War II the number of entrants has risen fairly steadily, but population growth has far outdistanced the net dentist gain recorded. As a result, the dentist-population ratio has declined substantially. In 1930, there were 58 active dentists per 100,000 persons. By 1940 this number had declined to 53; by 1950, to 50; and by 1955, to an estimated 46.

49. Are there substantial geographic differences per 100,000?

There are substantial geographic differences in the distribution of dentists. In the 10 top-ranking States, the number of dentists per 100,000 persons ranges from 55 to 74. In the 10 most poorly supplied States, on the other hand, ratios range from only 29 to 16. The Northeast, with 59 dentists per 100,000 persons, has the largest supply of dentists in relation to its population, and the South, with 27 per 100,000, the smallest number. The North Central States and the West occupy intermediate positions, with 48 and 44 dentists per 100,000 persons, respectively.

50. Have disparities in dentist supply tended to disappear?

Although the differences among the various regions of the country have been reduced over the past 15 years, the reduction has occurred largely because of a sharp decline in relative dentist supply in those sections of the country which were formerly most adequately supplied. The most conspicuous change has occurred in the Far West, where the ratio fell from 77 dentists per 100,000 persons in 1940 to 56 in 1955—a decline of 21, as compared with a drop of 7 in the Nation as a whole. The ratios of many other once-well-supplied areas have also been declining but at a more gradual pace. In 1940, for example, the ratio in the Mid-Atlantic States exceeded the national average by 12, but by 1955 it had decreased to within 4 of the national figure. The Great Lakes States had 9 more dentists per 100,000 and the Middle West 7 more than the national average in 1940, but by 1955 the Great Lakes margin had decreased to 2, and the margin in the Middle West had disappeared completely. The New England ratio, though still above the national average, had declined from 60 per 100,000 in 1940 to 56 in 1955. The only region of the country where the ratio improved was the South, but the ratio there rose only from 26 to 27 per 100,000 population.

51. Are there more dentists per 100,000 in urban than in rural areas?

Yes. In 1955 there were almost 2½ times as many dentists in metropolitan areas as in the less highly urbanized counties. The metropolitan counties held about 58 percent of the population but nearly 71 percent of the dentists. Similarly, among the nonmetropolitan counties, those which contained a city of at least 10,000 persons were better supplied with dentists than were other counties. In every region these smaller urban counties held a significantly larger percentage of the nonmetropolitan dentists than of the nonmetropolitan population.

52. What are some of the factors responsible for the geographic and rural-urban distribution of dentists?

Economic factors to a great extent determine the location of dental practices. In urban areas the demand for dental services and the ability to pay for them are generally greater than in rural areas. Many dentists doubtless settle in urban areas because of their personal preferences, such as the desire to be close to centers of greater social and cultural activity.

53. Do dental school graduates tend to practice in the State in which they attended dental school?

Yes; 64 percent say they will practice in the State where they attended dental school. States with dental schools receive 38 percent of their students from other States. Since

only 36 percent of all students leave the school State when they enter practice, States with dental schools gain 2 percent of the graduating class at the expense of other States.

54. Do dental school graduates tend to practice in the State in which they lived prior to dental training?

Yes; the large majority of students plan to practice in the State in which they attended high school. About 84 percent of all students indicate that they will establish practice in their home State. However, only 79 percent of those from States without dental schools indicated that they would return to their home States to practice, as compared with 86 percent of the students from States which have dental schools.

DENTIST REQUIREMENTS

55. Is there a shortage of dentists at the present time?

Yes; a substantial deficit in dentist supply has built up over the past 25 years. An actual loss in the number of dentists occurred during the 1930's and the gains since then have not been great enough to keep pace with population growth. By 1955, restoration of the service levels of 1930 (58 dentists per 100,000 persons) would have required an additional 19,000 dentists.

Any estimate based on a return to 1930 levels unquestionably understates actual needs. The rapid advance in income and educational levels since that time and the increased concentration of population in large metropolitan areas has meant that the potential per capita demands for care are higher now than at any previous time in the Nation's history.

56. If no expansion takes place beyond that now contemplated, how many dentists will be in practice by 1975?

Although more than 65,000 dentists will be graduated from the Nation's dental schools during the next two decades, the majority of these graduates will be required to replace dentists lost through death and retirement. The active dentist supply will increase by only about 18,600, growing to an estimated 94,350 in 1975.

57. How many dentists per 100,000 persons will there be in 1975?

For the Nation as a whole, the number of active dentists per 100,000 persons will fall to 43 by 1975 if the population continues to grow at its current high rate. Ratios will decline further in all regions of the country except in the South and Southwest where a modest improvement may occur if current trends in the distribution of dentists continue. Even with such an improvement, however, these Southern States will have only about 29 dentists per 100,000 population.

58. How many additional dentists would be needed by 1975 in order to maintain 1955 service levels?

To maintain 1955 service levels, the Nation will need approximately 10,000 more dentists in 1975 than will be available at currently projected levels of school output. Accord-

ing to a recent estimate of the Bureau of Economic Research and Statistics of the American Dental Association, two new schools would have to be built in each year from 1957 to 1971 to provide the additional dentists needed to assure that 1955 service levels will prevail in 1975. Thus, a total of 30 new schools (or the equivalent expansion of existing schools) will be needed by 1975.

59. How many dentists would be required to regain 1930 service levels?

To regain 1930 service levels, almost 130,000 dentists must be in practice by 1975. Since without additional facilities, only 95,000 dentists can be expected to be in practice by 1975, the accrued deficit from 1930 will have grown from 19,000 in 1955 to about 35,000 in 1975. Since demands for dental care will undoubtedly continue to increase, the supply of dentists will be even less adequate in 1975 than these figures indicate.

60. What regions of the country face the greatest deficits as measured by previously attained ratios of dentists to population?

By 1975, the number of dentists per 100,000 persons in the Far West will be reduced to less than half the number practicing there in the 1920's and 1930's. To restore this earlier service level the Far West will require an estimated 15,500 dentists above the number who can be expected to be practicing in those States in 1975.

Substantial deficits will also accrue in the Rocky Mountain States, in New England, and in the mid-Atlantic and North Central regions. The relative supply of dentists in both the Rocky Mountain States and New England has been declining since the 1920's; by 1975, the accrued deficit in these two areas will have grown to 1,200 and 2,200, respectively. The deficit in the north central region, where the most favorable ratio was attained during the 1930's, will increase to 13,800 by 1975, and the deficit in the mid-Atlantic region will increase to about 4,900 if current trends in the distribution of dentists continue. While the South and Southwest will have a ratio of dentists equal to any they have had in the past, improved economic conditions and cultural levels suggest that the ratio will be far below the population needs.

61. Are dentist-population ratios an adequate measure of the need for dental services?

No, they are not. Adequacy of any given dentist-population ratio must be viewed in the context of changes in dental practices and knowledge, and changes in dental needs of the

population. Advances in scientific knowledge, the growth in numbers and kinds of supporting dental personnel, as well as other factors, may alter the capacity of dentists to provide dental services. The need for dentists will also continue to be influenced by the demand for dental services.

III. DENTAL HYGIENE SCHOOLS AND DENTAL HYGIENIST REQUIREMENTS

DENTAL HYGIENE SCHOOLS AND STUDENTS

62. What role does the hygienist play in modern dentistry?

The hygienist, who is trained to perform prophylaxes, apply topical fluorides, and to assist in certain other procedures, can relieve the dentist of duties which, it has been estimated, normally account for as much as a quarter of his time, thus freeing the dentist for more highly specialized procedures.

63. How many schools of dental hygiene are there in the United States?

There are 34 schools of dental hygiene in operation today. Of these, 25 are affiliated with dental schools. Limitation of facilities and a lack of money have prevented other dental schools from providing dental hygiene training. All but 3 of the dental hygiene schools offer a standard 2-year certificate course, and 9 of these also offer a 4-year degree program. The remaining 3 schools offer a 4-year degree program only.

64. How many of the dental hygiene schools are publicly owned and how many are privately owned?

There are 19 public dental hygiene schools, of which 13 are affiliated with dental schools. Of the 15 private schools, 12 are affiliated with dental schools.

65. Has the number of hygiene schools been increasing?

Yes, the number of schools has doubled during the past 10 years. There were only 16 schools in 1946, as compared with the 34 in operation at the present time. The number of public schools has risen from 6 to 19, and the number of private schools from 10 to 15.

66. How many dental hygiene students are there?

In 1955–56, there were 2,009 students enrolled in dental hygiene schools, including 1,094 in public schools and 915 in private schools.

67. Has the number of dental hygiene students been increasing?

Yes; enrollment in schools of dental hygiene has tripled since the end of World War II, rising from 678 in 1945–46, to 2,009 in 1955–56.

68. Have publicly owned schools increased their enrollment more than private owned schools?

Yes; nearly two-thirds of the enrollment increase during the past 10 years has taken place in public schools. Public school enrollments have increased fivefold, rising from 231 in 1945–46 to 1,094 in 1955–56. Private school enrollments have doubled during this period, increasing from 447 to 915.

69. How is the training capacity for hygienists distributed?

The Northeast has the largest number of freshman places available, with 11.4 per 1 million persons. The North Central States rank next, with 7.0 spaces. The South and the West have ratios of only 4.0 and 3.6, respectively.

70. How many dental hygiene graduates are there?

In 1955, 857 students were graduated from dental hygiene schools, about 2½ times the number graduating in 1945. Practically all of this increase can be accounted for by the establishment of new schools.

71. Is it expected that the number will continue to rise?

Yes; there will probably be about 38 dental hygiene schools in operation by 1960, graduating perhaps as many as 1,200 students annually.

72. What is the trend expected to be after 1960?

No definite information is available, but since the need for hygienists is so pressing, it seems likely that increases will occur.

DENTAL HYGIENE GRADUATES AND FUTURE REQUIREMENTS

73. How many dental hygienists are currently active in the profession?

An estimated 3,959 dental hygienists were active in the profession in 1955.

74. How many hygienists are there per 1,000 dentists?

In 1955, there were an estimated 52 active hygienists for every 1,000 practicing dentists.

75. Are there substantial variations in the geographic distribution of hygienists per 1,000 dentists?

Yes; dental hygienists are distributed more unevenly in the United States than are dentists. The largest concentration of hygienists is in the Northeast, where there were 79 hygienists per 1,000 practicing dentists. The rates for the Western, North Central, and Southern States were 35, 36, and 39, respectively.

76. What factors are responsible for the current distribution of hygienists?

The current distribution of hygienists results in large measure from the fact that they are a relatively new professional group who have won acceptance only as dentists have had an opportunity to see their work and recognize their potential value. The profession originated in the Northeast and almost two-thirds of all hygienists ever graduated were trained in Northeast schools.

77. Is there a shortage of hygienists?

Yes, and the shortage is becoming more acute as dentists become increasingly aware of the value of the hygienists' services. As a result, dentists encounter the greatest difficulty in hiring a hygienist in States which are seemingly well supplied. If these well-supplied States are taken as a standard, the minimum ratio which should now exist would be 100 hygienists per 1,000 active dentists. On this basis, approximately 7,600 hygienists, nearly double the available number, could be employed today.

78. How many hygienists will be needed in the future?

The need for hygienists will increase both because of the projected rise in the number of dentists and because demands for their services will undoubtedly grow as dentists now in practice are replaced or augmented by younger dentists who have learned in dental school to work with auxiliary personnel. A ratio of 125 hygienists to 1,000 active dentists would be a reasonable goal for 1975. To achieve this ratio will require almost 12,000 hygienists, and more can be used if the dentist supply increases beyond currently projected levels.

79. How great a deficit will exist by 1975?

If the number of graduates rises to 1,200 by 1960 and no further increase is recorded, there will be about 9,575 hygienists in practice by 1975, leaving a minimum deficit of 2,225.

80. How much expansion in dental hygiene training facilities would be required in order to erase this deficit?

The provision of facilities is a larger task than the anticipated deficit suggests. Only a minority of those trained are likely to be active at any one time, since marriage and motherhood reduce the potential working life of the average hygienist by a substantial number of years. If hygientists continue to enter and leave the labor force at the current rate, it will be necessary to train 6,800 additional hygienists between 1957 and 1975 to avoid this expected deficit of 2,225.

IV. DENTAL AND DENTAL HYGIENE SCHOOLS AND STUDENTS—FINANCIAL ASPECTS

COST AND FINANCING OF DENTAL AND DENTAL HYGIENE SCHOOLS

81. How much do dental and dental hygiene schools spend annually?

The total cost of operating 45 dental schools (including 25 affiliated dental hygiene schools) and 9 dental hygiene schools not associated with dental schools amounts to approximately $32 million at the present time, according to estimates prepared by the American Dental Association in January 1957. Because of the difficulty of prorating shared costs in institutions offering both dental and dental hygiene training, no current information is available on the amounts spent by each type of school. Comprehensive data for 1949–50, however, indicate that in that year the 40 dental schools then in operation spent $15.7 million and the 18 dental hygiene schools $600,000.

82. How much of the total amount expended annually in the United States for health purposes is spent on training dentist and hygienists?

Less than one-half of 1 percent of the total amount spent for health purposes is spent on training dentists and dental hygienists.

83. Are dental and dental hygiene school operating expenses increasing?

Yes, a substantial increase has taken place in the costs of operating dental and dental hygiene schools. In 1949–50, for example, the combined cost of operating 40 dental schools, their 12 affiliated dental hygiene schools, and 6 nonaffiliated dental hygiene schools was one-half of the amount required in 1956–57 to meet the expenses of 45 dental schools, their 25 affiliated hygiene schools, and 9 nonaffiliated dental hygiene schools.

84. What are the principal expense items?

The largest single expense item is faculty salaries, which represents about 37 percent of the total estimated operating costs for 1956–57. Noninstructional salaries account for 9

percent; administration for 9 percent; equipment and supplies for 13 percent; research for 6 percent; physical plant for 6 percent; graduate and postgraduate programs for 2 percent; library facilities for 1 percent; and miscellaneous items for 17 percent of the total costs.

85. Does tuition income pay for dental and dental hygiene school operating expenses?

No, it does not. In 1956–57, tuition income on the average will cover only 23 percent of the operating costs of dental and dental hygiene schools.

86. To what extent do public and private dental schools differ in their reliance on tuition income?

Tuition and fees meet a far larger share of the total expenses of private schools than of public schools. In 1949–50, private dental schools reported that 43 percent of their operating revenues came from this source, whereas public schools paid only 22 percent of their costs out of tuition income.

87. What is the trend with regard to the percentage of operating expenses covered by tuition income?

The percentage of operating expenses covered by tuition income has steadily declined. Tuition and fees, which paid about one-half of the total operating expenses of dental schools in the mid-twenties, represented only 43 percent of the total in 1940–41. By 1949–50, the figure had further decreased to 35 percent. At the present time, income from this source meets less than 25 percent of dental school operating costs.

88. What are the sources of revenue other than tuition income from which dental and dental hygiene schools derive funds to cover their operating expenses?

At the present time, over $18 million comes from State support, university transfers, and various forms of private support. Gifts and interest from endowments account for only a small part of the total operating expenses. Other sources of income are: dental services provided by the schools through their clinics (14 percent), research support from the Federal Government (3 percent), and support for research activities from other sources (2 percent).

89. Do these figures accurately reflect the actual distribution of sources of financing in individual schools?

No, they do not. There are differences between public and private schools, differences among the various regions, and substantial differences between large and small schools.

90. Do public and private dental schools differ with regard to the sources of their nontuition income?

Private schools meet a larger percentage of their basic operating expenses from clinic income than do the public schools (28 percent, as compared with 21 percent in 1949–50). (Together, clinic income and income from tuition and fees accounted for 71 percent of the total operating revenue of private schools, but for only 43 percent of the total for public schools.)

Public schools received State funds or university transfer funds equivalent to about 56 percent of their operating costs. State support of private schools was negligible, and university transfers accounted for only 21 percent of private school funds.

Neither public nor private schools have substantial incomes from other sources. Income from endowments, gifts, and grants met slightly less than 5 percent of the basic operating expenses of private schools in 1949–50, and only 1.2 percent of the public schools' expenses.

91. Is there a uniform pattern with regard to privately owned dental school budgets on the one hand and publicly owned dental school budgets on the other hand?

No. Although the differences between the two groups are notable, there is considerable variation within each group.

92. What does it cost to teach dental and dental hygiene students?

The per student cost today for all dental and dental hygiene schools combined is estimated at approximately $2,200. In 1949–50, the average amount spent per student was about $1,300. Separate data are not available currently for dental and dental hygiene students, but in 1949–50, the basic annual operating expense per dental student was $1,400, while the cost per dental hygiene student was only about $500.

93. Does available information indicate wide variations in the cost of teaching among different dental schools?

Yes, dental schools reported fairly wide variations in costs per student. In 1949–50, the 3 schools with the highest basic operating expense per student averaged $4,388, or more than 5 times the average amount ($798) for the 3 schools with the lowest expense per student. The difference between the average costs reported by public and private schools amounted to $322, with public schools indicating an average cost per student of $1,469 and private schools, $1,147.

Median cost per student was closely related to school size. For small schools (under 225 students) the figure was $1,469; for medium-sized schools (225 to 348 students) $1,252; and in the large schools (over 348 students) $1,170.

94. Do State payments to dental schools reflect actual cost of teaching?

State payments to dental schools vary considerably, but the payments have little relationship to costs per student.

95. Have Federal research activities resulted in increased dental school deficits?

In the past, Federal grants for research projects did not include money for administration of the project. Now, the Public Health Service permits the inclusion in its grants of a 6 percent overhead charge for administration cost. Funds for dental research have been extremely limited, however. It is therefore unlikely that deficits of any size have been created because of research activities which were not fully paid for by Federal grants.

STATE PROGRAMS IN SUPPORT OF DENTAL AND DENTAL HYGIENE SCHOOLS

96. What are the States doing to support dental and dental hygiene schools?

Sixteen States and one municipality own and operate dental schools. In addition, a few private schools receive some financial support from State funds through one of the regional compact arrangements. In Pennsylvania (which has no public dental schools) private dental schools receive some State assistance from funds appropriated for general university use. However, the private dental schools, unlike private medical and veterinary schools and osteopathic colleges, do not receive direct payments from the State of Pennsylvania.

Fifteen States and one municipality own and operate dental hygiene schools. One of these States—New York—has four publicly owned dental hygiene schools, one of which is owned by the State and the others by local communities.

97. What have the States done recently to establish and support new dental and dental hygiene schools?

Of the 6 dental schools established since the end of the war, 3 are publicly owned. In addition, a new dental school has been constructed at West Virginia University which will, according to current plans, admit its first freshman class in September of 1958. The State of Colorado has appropriated money for the construction of a new dental school at the University of Colorado.

Of the 18 dental hygiene schools established since the end of the war, 13 are publicly owned. In all, 9 States and 4 local communities have constructed dental hygiene schools. In addition, current plans call for a school of dental hygiene to be operated in association with the proposed dental school in Colorado.

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REGIONAL PROGRAMS IN SUPPORT OF DENTAL AND DENTAL HYGIENE SCHOOLS

98. Are there any regional programs in existence for assisting dental and dental hygiene schools?

Programs are in full operation in the Western Region and in the Southern Region. Currently, these programs include only the education of dentists. The Western Interstate Commission for Higher Education, however, is expanding its program to include dental hygiene education.

A third regional program in New England is in its first year of operation. Arrangements are now being worked out for the inclusion of dental students.

99. What are some of the purposes of regional educational arrangements?

The dental education programs of the regional organizations are designed to give financial support to existing dental schools in the region so that training programs can be improved; give financial assistance to qualified students from States without schools, by permitting them to pay the lower dental school tuition fees charged for State residents; facilitate the admission of qualified students from States lacking dental schools; enable States lacking dental schools to meet, at least partially, their obligation to provide training in the field of dentistry; reduce financial burdens of participating schools by helping defray differences between operating cost per student and charges paid by the student.

100. How do the regional arrangements work?

The member States join a compact which provides for the admission of students from one member State to dental schools in other member States. The costs of operating the regional organizations are borne by the member States. The home State pays the school a stipulated annual amount for each student admitted. The out-of-State student pays the same tuition fees charged to in-State students.

101. What schools can participate?

All dental schools, both public and private.

102. What is the Western Regional arrangement?

The Western Region consists of the States of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico,

Oregon, Utah, Washington, and Wyoming, and the Territories of Alaska and Hawaii. The regional program is conducted by the Western Interstate Commission for Higher Education, established in 1953 by interstate compact.

States sending students to dental school are currently paying the schools $1,600 per student annually. In 1955–56, 25 dental students were attending school under the Western program and payments under the compact totaled $39,600. Students from Arizona, Montana, Colorado, Wyoming, and Idaho were attending schools in other Western States.

103. What is the Southern Regional arrangement?

The States making up the Southern Region are Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. The Southern Regional Education Board, established in 1949 under an interstate compact, administers the Southern regional program.

States sending students to dental schools pay the schools $1,500 per student per year. In 1955–56, a total of 277 students from 11 States were enrolled in the dental schools under the regional program.

PRIVATE PROGRAMS IN SUPPORT OF DENTAL AND DENTAL HYGIENE SCHOOLS

104. What are the foundations doing to aid dental and dental hygiene schools?

Some financial assistance has been made available by private foundations to dental schools and dental hygiene schools for research and graduate training. In 1954, for example, the Murray and Leonie Guggenheim Foundation made a grant of a half-million dollars to establish an institute of dental research at the New York University College of Dentistry. Grants totaling $3.4 million have been made by the division of dentistry of the W. K. Kellogg Foundation over the past 25 years, chiefly to United States and Canadian dental schools for use in the field of graduate and postgraduate dentistry. The largest single grant under this program went to the University of Michigan for the construction of an institute of graduate and postgraduate dentistry. In addition, the Kellogg Foundation has assisted three United States dental schools in establishing training programs for dental hygienists. The University of Alabama received $18,000; the University of Detroit, $60,395; and the University of Oregon, $8,291 from this source.

Indirect financial support for undergraduate training has also been provided by the Kellogg Foundation. Under a wartime program establishing scholarship or loan funds for students majoring in the health fields, every dental school was awarded a sum of $10,000, with an option to reapply. Although these loan funds were for the use of students, they provided, in that context, indirect aid to the schools.

FEDERAL PROGRAMS IN SUPPORT OF DENTAL AND DENTAL HYGIENE SCHOOLS

105. Does the Public Health Service provide assistance to dental schools?

A program to develop teaching techniques for training dental students to work efficiently with chairside assistants is now being conducted in the dental schools of the Universities of Iowa, North Carolina, Minnesota, and Alabama. This program is financed with $75,000 allocated by the Public Health Service.

Since 1950, the National Institute of Dental Research has operated a program of research grants, with the majority of the grants made going to dental schools. These grants, which in 1956–57 amounted to an equivalent of only about 3 percent of the total operating budgets of dental schools, are primarily intended to further dental research at a graduate level. They have had, therefore, relatively little impact on undergraduate teaching activities.

106. Are dental research facilities being constructed at dental schools under the Health Research Facilities Act?

Seven grants in the amount of $921,000 were made to dental colleges under Public Law 835, 84th Congress (Health Research Facilities Act of 1956), which provides for a 3-year program of $30 million annually for matching grants for the construction of health research facilities. In addition, a few grants have been approved for combined medical and dental research facilities.

107. Have dental facilities been constructed at dental schools under the Hill-Burton Act?

Funds have been provided under the Hill-Burton Act for the construction of dental clinics associated with teaching hospitals. An allocation of $420,811 aided in the building of a 57-chair dental clinic at the University of Alabama. Dental facilities were provided at the University of Oregon under an appropriation of $70,329, and at Marquette University under an appropriation of $92,212.

108. Does the Housing and Home Finance Agency provide assistance to dental schools?

The Community Facilities Administration of the Housing and Home Finance Agency administers a college housing program. Pursuant to title IV of the Housing Act of 1950, as amended, direct, low-interest Federal loans may be made to colleges and universities to assist in developing housing and related service facilities when loans at equally favorable rates are not available from other sources.

Under this act, 2 loans totaling $2.31 million were made to the University of Indiana for the construction of housing facilities for 263 students, including 70 dental students.

COST AND FINANCING OF A DENTAL AND DENTAL HYGIENE EDUCATION

109. How long does it take to complete a dental education?

A minimum of 6 years is required to complete the dental curriculum. This 6-year figure includes 4 years in a dental school and 2 years of predental schooling. However, in 1955, the majority of the students enrolled had completed at least 3 years of predental schooling, and about half of the students held a bachelor's degree. Only a quarter of the students had as little as 2 years of predental education.

110. How much does a dental education cost the student or his family?

The average amount required to complete 4 years in dental school was about $11,800 in 1953–54. (Married students reported expenditures of approximately $14,450 to complete the 4-year course of study; of this, $10,050 represented living expenses. Single students (other than those living at home) needed a total of $10,350, of which $5,900 represented living expenses.) To these costs must be added the expenses of completing undergraduate training. Each year of college at a public institution costs approximately $1,500, so that for the average student with 3 years of preprofessional training the full cost of a dental education totals about $16,300. Of this sum, approximately $1,400 is needed to purchase equipment. For the 50 percent of the students who acquire a bachelor's degree prior to admission to dental school, the total cost averages about $17,800.

111. How do the costs of attending private and public schools compare?

The average student attending a private school spent $12,037 to meet the costs of 4 years in school, whereas the average student in public schools spent $11,262. These figures include school and living expenditures of $4,780 and $7,257, respectively, in private schools and $3,682 and $7,580 in public schools.

112. How do students finance their dental education?

Dental students draw funds from various sources. The average married student relies principally on his own and

his wife's earnings, drawing 12 percent from his own earnings during the school year, 39 percent from his wife's earnings, and 15 percent from savings from vacation earnings and other sources. An additional 18 percent is contributed by parents. Single students rely principally on their parents, drawing 59 percent of their funds from this source. An additional 19 percent comes from savings, and 10 percent from the student's own earnings. Scholarship and loans represent only 0.8 percent and 3.9 percent, respectively, of the total funds of married students and 1.4 percent and 5.1 percent of the total for single students.

113. Are scholarships and other aids available to dental students?

Of the 43 dental schools operating in 1955–56, only 27 have student scholarships available. A study of student income sources in 1954 showed that scholarships cover only about 1.2 percent of all students' expenses in completing 4 years of training, and school loans, 0.6 percent. Among the 9,521 students reporting, only 728 scholarships and 401 loans were awarded for the 1953–54 school year. These awards aggregated $322,129 and $160,279, respectively, but provided only limited assistance to their recipients. The average amount received by persons holding either scholarships or loans was only $443 and defrayed but 15 percent of the year's expenses.

114. How much does a dental hygiene education cost the student or her family?

The average dental hygiene student attending school in 1953–54 spent $3,039 for 2 years of training, one-third of which covered school items (tuition and fees, supplies and equipment, and other incidentals) and two-thirds covered living expenses.

115. How do the costs of attending private and public dental hygiene schools compare?

The average expenditure for 2 years of dental hygiene training was $3,656 in private schools and $2,529 in public schools.

116. How do dental hygiene students finance their education?

Parents are the primary source of funds, while savings and students' earnings supply the next largest share. Of the $3,039 the average student spent for 2 years of dental hygiene training, $2,063 came from parents, $463 from savings, $157 from students' earnings, $126 from loans and scholarships, and $230 from all other sources.

STATE PROGRAMS IN SUPPORT OF DENTAL AND DENTAL HYGIENE STUDENTS

117. Do any States have programs in support of dental and dental hygiene students?

Funds have been provided by a few States for assisting dental students in financing their education, but dental hygiene students generally must rely on university sources. Recipients of loans or scholarships established for the aid of dental students in some instances must agree to practice in rural areas of the State for a specified period. Among the State programs that give financial aid to dental students are the following:

Alabama

The act creating the dental school of the University of Alabama provides for the establishment of a scholarship of $400 yearly for each county in Alabama. In order to be eligible, an applicant must have been accepted for matriculation by the authorities of the school of dentistry.

New York

In New York, 28 scholarships are available each year to dental students. Of these awards, 14 are allocated to counties of New York City, and 14 to other counties of the State. The scholarships amount to $750 for each of 4 years and may be used at an approved school in New York State. To be eligible, the applicant must be a United States citizen and a legal resident of New York State. The awards are made on a competitive basis.

Florida

The Florida Legislature has established a scholarship program designed to help students who wish to study dentistry, and to provide dental health care for rural areas and small communities. Each year 10 scholarships paying up to $1,000 for each of 4 years are available to Florida students. Recipients must agree to practice for 5 years in designated rural communities.

Virginia

The Medical College of Virginia was authorized in 1952 to establish four annual scholarships of $1,000 each for dental students. Recipients of these funds must be residents of Virginia and must agree to practice in designated State mental institutions or, if such vacancies do not exist, in desig-

nated rural communities for a period of years equal to the number of years for which scholarship funds were received.

North Carolina

In 1953, the North Carolina Medical Care Commission was provided with funds for making loans to dental students. Candidates must have been residents of North Carolina for 8 years and must agree to practice for at least 4 years in a North Carolina town or village of not more than 2,500 population. Eligible dental students may borrow up to $800 per year for 4 years.

PRIVATE PROGRAMS IN SUPPORT OF DENTAL AND DENTAL HYGIENE STUDENTS

118. Are there any private programs providing financial aid to dental or dental hygiene students?

Loan funds established by alumni groups, fraternal organizations, or local dental societies were available in at least 16 dental schools in 1956. Nine schools had loan funds which had been created by dental auxiliary groups (wives of dentists) and several schools reported loan funds established by the W. K. Kellogg Foundation. In at least one State local dental societies offer scholarships to dental hygiene students.

FEDERAL PROGRAMS IN SUPPORT OF DENTAL AND DENTAL HYGIENE STUDENTS

119. What is the Federal Government doing to aid undergraduate dental students?

Several Federal programs with different objectives give direct or indirect financial assistance to undergraduate dental students. The undergraduate programs of the Army, Navy, and Air Force are designed primarily for recruitment purposes. The undergraduate programs of the Public Health Service are designed to stimulate interest in dental public health and dental research. The Veterans' Administration's program gives direct support to undergraduates who are eligible for GI benefits.

120. What is the program of the Department of Defense in support of undergraduate dental students?

A senior dental student program is operated by each of three services of the Department of Defense. A total of 190 senior dental students are commissioned as second lieutenants, or the Navy equivalent, and are placed on active duty with full pay and allowances while they continue their studies. On graduation, these officers are promoted one grade and placed on active duty for a period of 3 years.

121. What is the program of the United States Public Health Service in support of undergraduate dental students?

The Division of Research Grants of the United States Public Health Service administers a program of grants and fellowships in support of clinical and basic research in dentistry and related sciences. In fiscal year 1956, 34 dental schools received dental student part-time research fellowship awards totaling $55,600.

Through another of its programs, the United States Public Health Service employs a limited number of dental students during the summer months for duty at hospitals, research laboratories, and other Service facilities throughout the United States.

The purpose of these programs and awards is to orient undergraduate dental students toward research and dental public health.

122. What has the Veterans' Administration done to support dental education?

The only recent period for which information is available is the year 1953–54. In that year, 15 percent of all students attending dental schools received veteran benefits aggregating about $2 million. Statistics for this same year indicate that other veterans enrolled in dental schools during 1953–54 did not receive veteran benefits presumably because they exhausted their benefits prior to completion of their dental studies.

123. What is the Federal Government doing to aid graduate dental students and to provide training in special fields of dentistry?

A principal objective of the United States Public Health Service's program in support of dental education is to provide training in special fields of dentistry. From funds appropriated by Congress last year for dental research, some $500,000 is available for training researchers. To date in fiscal year 1957, about $270,000 has been awarded in graduate training grants to nine dental schools and research centers.

The United States Public Health Service also distributes a limited number of regular fellowship awards for training in dental research. In fiscal year 1956, the number of such awards was 11, of which 7 were postdoctoral, 3 predoctoral, and 1 special.

Another program administered by the United States Public Health Service provides for traineeships for graduate or specialized training in public health for professional health personnel. This latter program includes dental hygienists.

PLANS FOR EXPANSION OF DENTAL AND DENTAL HYGIENE SCHOOL TEACHING FACILITIES

124. How much have dental and dental hygiene schools spent for the construction of facilities in recent years?

During the past 10 years, 38 dental schools, their 21 affiliated dental hygiene schools, and 6 nonaffiliated dental hygiene schools have spent nearly $56 million for new buildings, remodeling, and equipment. A substantial part of this expenditure was made by the 18 schools that constructed and equipped new facilities during the past 10 years.

125. If legislation were enacted providing for Federal matching grants for the construction of teaching facilities, how many dental or dental hygiene schools would expect to take advantage of such legislation?

Nearly all of the dental and dental hygiene schools, replying to date to a questionnaire, report that they would apply for grants under Federal legislation designed to assist in the construction of teaching or research facilities.

126. What would be the cost of the contemplated facilities?

The schools replying to a questionnaire report that, if Federal aid becomes available, construction projects costing approximately $66.3 million would be undertaken. Assuming that the schools which have not yet reported will have equivalent construction needs, it can be estimated that the total construction needs of dental and dental hygiene schools would be approximately $77 million.

127. Will the additional facilities enable the dental and dental hygiene schools to increase their enrollment?

Only one-half of the dental schools which reported that they would expand facilities or construct new ones with the aid of Federal funds, report that they could accommodate increased enrollment of dental students. It is expected that from 400 to 450 additional freshman students could be enrolled with the completion of this construction.

In addition, it is reported that 10 dental schools which do not now offer dental hygiene training would initiate a dental

hygiene course; 13 schools would inaugurate a training program for dental assistants; and 8 schools would begin a program for dental laboratory technicians. Fifteen schools indicate that already existing programs for the training of auxiliary personnel would be expanded to accommodate additional students.

PART THREE

OSTEOPATHIC COLLEGES

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SUMMARY—OSTEOPATHIC COLLEGES

OSTEOPATHIC COLLEGES—PRESENT AND FUTURE CAPACITY

There are six osteopathic colleges in the United States at the present time. The colleges are privately owned, belonging to the osteopathic profession. The number has remained the same since 1916 when the most recent osteopathic college was established. The colleges are located in Missouri (2), Iowa, Illinois, Pennsylvania, and California.

Enrollment has grown from slightly over 800 students 20 years ago to 1,900 students at the present time. This constitutes the capacity of the six colleges.

Of approximately 1,500 applicants for admission to osteopathic colleges in 1955–56, 568 were accepted and 520 actually enrolled.

The expected increase in the number of college graduates is expected to lead to an increase in the number of applicants to osteopathic colleges.

OSTEOPATHIC COLLEGES AND PHYSICIAN REQUIREMENTS

The number of graduates from osteopathic colleges reached an all-time high in 1955–56 with 469 graduates. Building plans in the various colleges will have to be carried to completion before student capacity can be increased from 1,900 to approximately 2,000. It is expected that by 1962 the size of the graduating class will be approximately 530.

In 1955, there were slightly over 12,000 osteopathic physicians in active practice. The national average was 7.4 osteopathic physicians for each 100,000 persons in the United States. The ratio in six States (California, Iowa, Illinois, Michigan, Missouri, and Oklahoma), however, was over twice the national ratio, while in 30 States the ratio was below the national average. Requests for additional osteopathic physicians mostly come from communities in these States. Five States (California, Michigan, Missouri, Ohio, and Pennsylvania) have 53 percent of all osteopathic physicians in the United States, and nearly 70 percent of the entering students come from these States.

OSTEOPATHIC COLLEGES AND OSTEOPATHIC STUDENTS—FINANCIAL ASPECTS

In 1950–51, the total budgets of the six osteopathic colleges was slightly over $4.5 million. Tuition income covered an average of 22 percent. There has been a steady increase in operating budgets, and

tuition income covers a smaller and smaller percentage of total operating expenses.

Osteopathic colleges are not connected with universities, and none of the present osteopathic colleges are publicly owned or operated.

Public support of osteopathic colleges is limited. The State of Pennsylvania has a program of assisting schools of medicine and osteopathy, and under this program the Philadelphia College of Osteopathy has received $200,000. Research grants have been made by the Public Health Service to one of the osteopathic colleges. All of the osteopathic colleges receive teaching grants to support instruction in the fields of cancer, heart, and mental health. Private support comes primarily from the osteopathic profession, alumni, and friends.

If Federal legislation is enacted providing construction aid for teaching facilities, ostepathic colleges plan projects costing $21,075,000 during the next 5 years. Of this total, about $14.5 million would be chargeable to teaching as distinguished from research. The colleges expect to secure matching funds from alumni, the general public, industry, and labor, foundations, State contributions, and increased fees.

The construction of these expanded or new facilities would enable the six colleges to increase their first-class enrollment by approximately 175 students.

I. OSTEOPATHIC COLLEGES—PRESENT AND FUTURE CAPACITY

TRAINING CAPACITY IN THE UNITED STATES

1. How many osteopathic colleges are there in the United States?

In 1955–56, there were six colleges of osteopathy and surgery in the United States, which were approved by the American Osteopathic Association.

2. How many of the osteopathic colleges are privately owned and how many are publicly owned?

The six colleges of osteopathy may be said to be privately owned. In reality they belong to the osteopathic profession.

3. Has the number of osteopathic colleges been increasing?

Four of the 6 osteopathic colleges were established before 1900 and 2 after 1900, the most recent 1 having been established in 1916.

4. Are new 4-year osteopathic colleges being established?

No.

5. How many osteopathic students are there?

In 1955–56, 1,900 students were enrolled in the six osteopathic colleges. In 1955–56, 520 first-year students were enrolled, constituting a gain of 33 over the entering class in 1954.

6. How many students other than undergraduate osteopathic students attend osteopathic colleges?

The only "other students" being trained by the faculty of an osteopathic college are the 48 student nurses enrolled in the School of Nursing of the Philadelphia College of Osteopathy. All osteopathic colleges offer professional courses to doctors in the field.

7. Has the number of osteopathic students been increasing?

In 1946, only 821 students were enrolled in the 6 osteopathic colleges, due to World War II conditions. This enrollment

steadily grew until it reached its capacity of approximately 1,900 students in 1951.

8. What is the size of first-year classes at present in the various colleges?

In 1955–56, the first-year classes were as follows:

Chicago College of Osteopathy	68
College of Osteopathic Physicians and Surgeons	96
Des Moines Still College of Osteopathy and Surgery	63
Kansas City College of Osteopathy and Surgery	103
Kirksville College of Osteopathy and Surgery	103
Philadelphia College of Osteopathy	87

9. Have existing osteopathic colleges reached their capacity?

Until new facilities are available in the 6 osteopathic colleges, the enrollment capacity will remain approximately 1,900.

SUPPLY OF APPLICANTS—NATIONALLY

10. How many students apply for admission to osteopathic colleges?

In 1955–56, 1,422 students applied for admission in the 6 osteopathic colleges.

11. How many applicants are accepted?

In 1955–56, 568 applicants were accepted, 520 of whom matriculated. Osteopathic colleges usually allow a 10 percent margin by granting acceptances to those applicants who are classed as alternates. The percentage of cancellations is approximately 10 percent varying slightly from year to year.

12. Has the number of first-year students enrolled in osteopathic colleges increased?

The present capacity in the first-year classes in the 6 osteopathic colleges is approximately 500. When new facilities are available, the size of the first-year classes will be increased.

13. What is the present ratio of applicants to students admitted?

In 1955–56, there were 2.7 applicants for each first-year student admitted by the 6 osteopathic colleges.

14. Has this ratio remained the same over the years?

No. The number of applicants to the 6 osteopathic colleges reached its peak during the academic year 1951–52. At that time 85 percent of the total osteopathic college enrollment were under Public Law 346 and Public Law 16. Due to the large number of veterans applying for admission, the ratio was 4.3 applicants for each first-year student admitted in that year.

15. How will the expected increase in the number of college graduates affect osteopathic college applicants?

The expected increase in the number of college graduates will undoubtedly increase the number of applicants to osteopathic colleges.

TRAINING CAPACITY AND SUPPLY OF APPLICANTS—STATE AND REGIONAL VARIATIONS

16. Where do most of the applicants come from geographically?

Slightly over 70 percent of all applicants to the 6 colleges of osteopathy come from 6 States, California, Pennsylvania, Michigan, Ohio, New York, and Missouri.

17. Does the ratio of applicants to population vary materially in different regions of the United States?

Yes. Other than the 6 States mentioned in 16 above, the next States in order of the number of applicants are Texas, New Jersey, Florida, and Indiana. There is an increasing number of applicants from the Northwest.

18. How are the osteopathic colleges distributed geographically?

The State of Missouri is the location of two of the osteopathic colleges. There is one college respectively in Iowa, Illinois, Pennsylvania, and California.

19. How is the training capacity distributed geographically?

Although two of the osteopathic colleges are located in Missouri, these two colleges show the widest distribution of students. The Kansas City College of Osteopathy and Surgery, for example, draws heavily from the Southwest and from the Seventh-day Adventists in California and Michigan. The Kirksville College of Osteopathy and Surgery draws heavily from Ohio, Michigan, New York, and western Pennsylvania.

20. Do fewer first-year students in relation to State population come from States without osteopathic colleges?

Ohio, Michigan, and New York do not have osteopathic colleges, but do have strong osteopathic hospital organizations. In 1955–56, these three States contributed nearly 32 percent of the entire first-year class.

ADMISSION POLICIES

21. What are the qualifications for admission to osteopathic colleges?

The six osteopathic colleges closely examine the typical personal qualifications which are deemed essential in the making of a physician, such as integrity, motivation toward a career in osteopathic medicine, emotional stability, personality characteristics, oral expression, etc. Many of these qualifications are examined first by the osteopathic physician in the field, who represents the profession in the preprofessional college and is accepted as an ex-officio member of college premedical counseling committees. These qualifications also are checked during the personal interview with the osteopathic college admissions committee, and in some cases various types of personality tests, such as the Minnesota Multiphasic Test, are used during the applicant's visit to the campus. Some osteopathic colleges require a psychiatric examination during the applicant's visit on the campus.

22. What are the educational qualifications for osteopathic college students?

The 6 osteopathic colleges require a minimum of 3 years of study in an approved college or university. In 1955–56, 75 percent of the entering first-year students had baccalaureate degrees, and 4 percent had completed 4 years of college study without the degree, making a total of 79 percent of the osteopathic college first-year students, who had completed 4 years of college training.

Specific subject requirements include inorganic chemistry, organic chemistry, zoology, physics, and English. The average osteopathic first-year student in 1955–56 showed 114 semester hours of college training (120 semester hours are usually required for graduation), which included 24 semester hours of chemistry, 24 semester hours of biological science, 8 semester hours of physics, and 12 semester hours of English.

23. How many applicants fail to meet the basic educational qualifications for entrance to osteopathic colleges?

The 1,422 individuals who were considered as applicants by the 6 osteopathic colleges presented college transcripts with the minimum educational requirements completed. The ma-

jority of those who were not accepted were refused admission due to below average grades.

24. Is there a generally recognized standard for testing the educational aptitude of applicants?

Two of the osteopathic colleges require their applicants to take the medical college admission test. It is estimated, however, that 80 percent of the entire entering first-year students in 1955 took this test. Four of the osteopathic colleges still require the completion of the Strong Interest Inventory, which is either scored by the preprofessional college or by the osteopathic college admissions committee, in light of the osteopathic pattern, which Dr. Strong, formerly of Stanford University, formulated.

25. Do osteopathic colleges attract college graduates with outstanding scholastic records?

Minimum scholastic achievement requirements for admission stipulate better than a C average in the required subjects. In analyzing the preprofessional college transcripts of the entering first-year class in 1955–56 and using the basis of A equals 3.0, B equals 2.0, and C equals 1.0, the overall preprofessional scholastic average of the 6 entering classes was 1.67 or a B average.

26. Are there special residence restrictions governing admissions to osteopathic colleges?

No.

II. OSTEOPATHIC COLLEGES—GRADUATES AND PHYSICIAN REQUIREMENTS

GRADUATES FROM OSTEOPATHIC COLLEGES IN THE UNITED STATES

27. How many students graduate from osteopathic colleges?

In 1955–56, 469 graduated from osteopathic colleges.

28. Has the number of graduates been increasing?

The graduating class in 1956 was the largest in the last 25 years. Under present enrollment capacity, approximately 460 graduates can be expected annually. In 1957, the graduating class will drop to 444, due to an unusually high mortality rate in the classes which entered osteopathic colleges in 1953.

29. Is it expected that the number of osteopathic college graduates will continue to rise?

Building plans in the various osteopathic colleges now under way or which will be initiated in the immediate future will increase the total student capacity in the 6 osteopathic colleges from 1,900 to approximately 2,000. It is expected, therefore, that by 1962 the graduating classes will reach a peak of approximately 530.

30. What is the trend expected to be after 1960?

The number of graduates after 1962 will depend on additional educational facilities in the six osteopathic colleges and the possibility of the establishment of another osteopathic college.

LICENSURE OF GRADUATES

31. How does an osteopathic college graduate get a license to practice?

Doctors of osteopathy are licensed in all States. In 30 States independent osteopathic boards administer the licensing examinations. In 3 of these 30 States, osteopathic physicians may also take the medical board examinations. In 15 States, the board of examiners are known as composite boards, made up of both doctors of osteopathy and doctors of medicine. In the remaining States, osteopathic physicians take the examinations administered by medical boards. In 19 States, the District of Columbia, and Alaska, the candidate for licensure is required to pass basic science examinations for eligibility to take licensing examinations. In 16 States, certificates from the National Board of Examiners for Osteopathic Physicians and Surgeons are accepted in lieu of their own licensing examinations.

32. What percentage of candidates who graduated from osteopathic colleges pass their osteopathic board examination?

In 1955, 451 osteopathic graduates and osteopathic physicians took licensing examinations conducted by independent osteopathic boards; 98.5 percent passed; 293 graduates and osteopathic physicians took examinations conducted by medical and composite boards and 86 percent passed. During the past 5 years the passing percentage of osteopathic physicians under medical and composite boards has ranged from 84 to 94 percent.

33. Must a licensed osteopathic physician be a United States citizen?

Fourteen States require citizenship in the United States for licensure as an osteopathic physician; 7 States require first papers and in the remaining States there are no citizenship requirements.

INTERNSHIPS AND RESIDENCIES

34. What is an internship?

An internship is a hospital training program of from 12 to 24 months. The main purpose of the internship is to further educate the physician and at the same time to provide osteopathic hospitals additional staff services to patients.

35. What is a residency?

The various osteopathic specialty boards require from 1 to 3 years of specialized training in the particular specialty as a part of the requirements for specialty certification. Osteopathic hospitals also rely considerably on residents for services to the patients.

36. What is an "approved" internship or residency?

The American Osteopathic Association, through its bureau of hospitals, is the approving authority of internship and residency training. Hospitals are inspected and approved at regular intervals.

37. Is the number of "approved" internships and residencies geared to the number of osteopathic college graduates?

No. The American Osteopathic Association, through its bureau of hospitals, approves hospitals on the basis of hospital standards and qualifications and not on the basis of the number of osteopathic physicians desiring intern or residency training.

38. What is the number of approved internships?

For the year 1955–56, there were 559 approved internships in 88 osteopathic hospitals, which had been approved for intern and/or residency training.

39. Has the number of approved internships increased?

Yes. In 1947–48, there were 62 osteopathic hospitals approved for intern training. These hospitals had approximately 280 internships.

40. Are all available approved internships filled?

No. Approximately 10 percent of the internships were vacant in 1955–56.

41. Who serve as interns?

Only graduates of approved osteopathic colleges.

42. How much are interns paid for their services?

Until December 1956 the American Osteopathic Association, through its bureau of hospitals, limited the maximum amount of internship stipends to $75. In December 1956 the maximum was removed. A recent survey (1956) of internship salaries in 42 approved training hospitals of over 50 teaching beds showed an average salary of $68.75 a month. All of the hospitals furnish full maintenance.

43. What is the number of approved residencies?

In 1955–56, there were 233 approved residencies in 43 approved osteopathic hospitals.

44. Has the number of residencies increased?

Yes. In 1947–48, only 16 osteopathic hospitals were approved for residency training. In these hospitals 71 residencies were available.

45. Are all available residencies filled?

Slightly over 80 percent of these residencies were filled.

46. Has the number of vacant residencies increased?

No.

NUMBER OF OSTEOPATHIC PHYSICIANS

47. How many osteopathic physicians are there in the United States?

In 1955, there were 12,433 licensed osteopathic physicians in all the States of the United States, 251 of whom were out of practice; a net of 12,182 in active practice.

48. How many osteopathic physicians are there in the United States per 100,000 population?

In 1955, there were 7.4 osteopathic physicians in active practice for each 100,000 persons in the United States, based on Bureau of Census total population estimate for 1955—164,303,000.

49. Has the number of osteopathic physicians per 100,000 been increasing?

No. There were 7.4 osteopathic physicians per 100,000 in 1940, 1950, and 1955.

50. Are there substantial variations in the geographic distribution of osteopathic physicians per 100,000 population?

Yes. In 1955, there were wide variations in the supply of osteopathic physicians in active practice in relation to population. In California, Iowa, Maine, Michigan, Missouri, and Oklahoma the ratio of osteopathic physicians per 100,000 people was over twice the national ratio of 7.4. In 30 States the ratio was below the national average: Alabama, Arkansas, Connecticut, Delaware, Georgia, Idaho, Illinois, Indiana, Kentucky, Louisiana, Maryland, Massachusetts, Minnesota, Mississippi, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, South Carolina, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, Wisconsin, and Wyoming.

51. Have geographic disparities tended to disappear over the years?

No. The disparities among States in the number of osteopathic physicians continue to become greater. California, Michigan, Missouri, Pennsylvania, and Ohio have 53 percent of the osteopathic physicians in the United States. Nearly

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70 percent of the entering students each year come from these States and over half of them return to those States for practice.

52. Are there more osteopathic physicians per 100,000 population in urban than in rural areas?

There are a larger number of osteopathic physicians in relation to population in several urban communities, such as Los Angeles, Dallas, Philadelphia, Detroit, Des Moines, and Chicago. Los Angeles, Philadelphia, Des Moines, and Chicago are locations of osteopathic colleges. In the other cities mentioned above there are teaching (approved intern or residency training) osteopathic hospitals.

53. What are some of the factors which are responsible for the present geographic and rural-urban distribution of osteopathic physicians?

Accessibility to osteopathic hospitals is one of the major reasons why young osteopathic physicians settle in urban communities.

54. Do osteopathic college graduates tend to practice in States in which they attended school?

Yes, considering the fact that 43 percent of the profession is located in the five States (California, Illinois, Iowa, Missouri, and Pennsylvania) where the osteopathic colleges are located.

55. Do osteopathic college graduates tend to practice in the State in which they lived prior to their osteopathic training?

Approximately 45 percent of the osteopathic college graduates practice in the State where they lived prior to their osteopathic training. Geographical distribution of students in osteopathic colleges, 1955: Alabama 1, Arizona 4, Arkansas 3, California 348, Colorado 9, Connecticut 12, Delaware 4, District of Columbia 4, Florida 23, Georgia 6, Hawaii 7, Idaho 1, Illinois 57, Indiana 27, Iowa 38, Kansas 20, Kentucky 10, Maine 7, Maryland 9, Massachusetts 14, Michigan 222, Minnesota 10, Mississippi 4, Missouri 76, Montana 3, Nebraska 6, New Hampshire 3, New Jersey 104, New Mexico 6, New York 203, North Carolina 2, North Dakota 2, Ohio 116, Oklahoma 22, Oregon 9, Pennsylvania 340, Rhode Island 14, South Carolina 1, South Dakota 7, Tennessee 9, Texas 41, Virginia 3, Washington 21, West Virginia 18, Wisconsin 11, Canada 6, China 1, Cyprus 1, El Salvador 1, Ethiopia 1, Himalaya 1, Iran 7, Iraq 1, Israel 1, Korea 1, Malaya 1, Panama 1, Puerto Rico 1, Trinidad 1, West Africa 1.

56. Do osteopathic college students from small communities tend to practice in small communities?

No accurate surveys have been made regarding this question. It is the general opinion, however, of osteopathic college administrators that there is a tendency for osteopathic graduates, whose prior residences were in rural localities, to start practice in such localities.

OSTEOPATHIC PHYSICIAN REQUIREMENTS

57. Is there an overall shortage of osteopathic physicians?

It is difficult to estimate the extent of an overall shortage of osteopathic physicians. In the 88 approved teaching osteopathic hospitals there are approximately 100 more internships than there are graduates. The central office of the American Osteopathic Association and the various osteopathic colleges receive requests every year from communities for young osteopathic physicians which cannot be supplied. The Office of Defense Mobilization and the Department of Labor list osteopathy as a critical occupation.

58. Is there a shortage of osteopathic psychiatrists?

There is a shortage of osteopathic physicians certified in psychiatry. In 1955, there were only four residencies in the approved residency training osteopathic hospitals in psychiatry and neurology. In 1955–56, there were six certifications by the American Osteopathic Board of Neurology and Psychiatry.

59. Is there a shortage of osteopathic physicians in Government agencies?

The American Osteopathic Association has made no survey of Government agencies regarding physician shortages in public mental hospitals, health departments, the Public Health Service, and the Veterans' Administration.

60. Is there a shortage on the faculties of osteopathic colleges?

There is a shortage on the faculties of osteopathic colleges. Most of the shortages are in the clinical departments.

61. Is there an osteopathic physician shortage in rural areas?

Yes. The preponderance of requests for location of osteopathic physicians received by the American Osteopathic Association are from rural communities.

62. What estimates have been made with regard to an overall osteopathic physician shortage?

It is difficult to estimate the shortage of osteopathic physicians, as such. Various estimates of the shortage of physicians generally have been publicized, and inasmuch as osteo-

pathic physicians are licensed in all the States and have unlimited practice rights as physicians in some three-fourths of the States, the supply of osteopathic physicians is of direct bearing.

63. Are osteopathic physician-population ratios an adequate measure of the need for osteopathic services?

No. The preponderance of requests for location of osteopathic physicians received by the American Osteopathic Association are from communities in States where the osteopathic physician-population ratio exceeds the national average.

public physicians are licensed in all the States and have unlimited practice rights as physicians in some thirty-fourths of the States, the supply of osteopathic physicians is of adequate size.

63. Are osteopathic physician-population ratios an adequate measure of the need for osteopathic service?

No. The preponderance of requests for location of osteopathic physicians received by the American Osteopathic Association are from communities in States where the osteopathic physician-population ratio exceeds the national average.

III. OSTEOPATHIC COLLEGES AND OSTEOPATHIC STUDENTS—FINANCIAL ASPECTS

COST AND FINANCING OF OSTEOPATHIC COLLEGES

64. How much do osteopathic schools spend annually?

A tabulation made in 1950–51 showed total combined budgets of the 6 osteopathic colleges was $4,509,594.05. Student tuition and fees amounted to $1,017,638, a ratio of 22.5 percent. The difference is represented by deficit financing and private contributions and teaching grants in cancer, heart, and mental health from the Public Health Services.

65. Are osteopathic college operating expenses increasing?

Yes. Osteopathic college operating budgets are increasing steadily, due to the higher cost of teaching materials and necessary higher salaries.

66. What is the trend with regard to the percentage of operating expenses covered by tuition income?

Tuition income covers a smaller and smaller percentage of total operating expenses.

67. What are the sources of revenue other than tuition income from which osteopathic colleges derive funds to cover their operating expenses?

The United States Public Health Service is supplying on an annual basis some funds for research and primarily for more emphasized teaching in cardiovascular diseases, cancer, and mental health. The osteopathic profession and its friends have been contributing approximately half a million dollars a year to the six osteopathic colleges, which is primarily directed to operating expenses and to a smaller degree to new facilities. Osteopathic college owned hospitals and clinics must either be self-supporting, and in some cases must assist in the support of the teaching budget.

68. Do these figures accurately reflect actual distribution of sources of financing in individual schools?

There is a considerable variation in individual schools.

69. Are other university departments subsidizing osteopathic colleges?

Osteopathic colleges are not connected with universities.

70. Have large-scale research activities resulted in increased osteopathic college deficits?

The Kirksville College of Osteopathy and Surgery maintains the largest scale research activities of the six osteopathic colleges. The necessary finances for this program, however, are supplied, in large part, by Federal agencies and by the American Osteopathic Association, through its Bureau of Research. Costs of research activities in osteopathic colleges do contribute to increased deficits in the individual colleges in varying degrees.

STATE PROGRAMS IN SUPPORT OF OSTEOPATHIC COLLEGES

71. What are the States doing to support osteopathic colleges?

The State of Pennsylvania has a program of assisting schools of medicine and osteopathy. The Philadelphia College of Osteopathy has received $200,000.

72. What have the States done recently to establish and support new osteopathic colleges?

To date, the States have not established colleges of osteopathic medicine.

PRIVATE PROGRAMS IN SUPPORT OF OSTEOPATHIC COLLEGES

73. What private programs have been established for the purpose of aiding osteopathic colleges?

The osteopathic progress fund, which was launched in 1942, provides a vehicle for assistance by the profession as described under question 111.

FEDERAL PROGRAMS IN SUPPORT OF OSTEOPATHIC COLLEGES

74. What is the Federal Government doing to aid osteopathic colleges?

The Public Health Service makes some grants for teaching (cancer, heart, and mental health) and research.

75. What facilities in osteopathic colleges have been constructed under the Health Research Facilities Act?

Two osteopathic colleges have applied for grants under this law, thus far.

76. What facilities in osteopathic colleges have been constructed under the Hill-Burton Act?

The new teaching hospital of the Kirksville College of Osteopathy and Surgery and the new clinical building of the Kansas City College of Osteopathy and Surgery (now under construction) were constructed under the Hill-Burton program. A construction grant for a rehabilitation facility at the College of Osteopathic Physicians and Surgeons, at Los Angeles, has been approved.

COST AND FINANCING OF AN OSTEOPATHIC EDUCATION

77. How long does it take to complete an osteopathic education?

The minimum time to complete an osteopathic education in the United States includes a minimum of 3 years of undergraduate college, 4 years of osteopathic college, and 1 year of internship. Three-fourths of the entering students in 1955 had 4 years of undergraduate college. From 3 to 5 years in addition are required for certification in the various specialty fields.

78. How much does an osteopathic education cost the student or his family?

Undergraduate college costs approximately from $1,500 to $2,000 per year. The minimum costs, therefore, would be from $4,500 to $6,000 for the minimum 3 years of undergraduate training. The average cost of 4 years of osteopathic college is approximately $9,000.

79. How do students finance their osteopathic education?

Only 15 percent of the present undergraduate osteopathic college enrollment is receiving aid from the Veterans' Administration through Public Law 16 or Public Law 550. The rest of the enrollment at least initiate their osteopathic training with savings or with help from the immediate family or friends. By the third year the majority of osteopathic students are married and in many cases the wives assist by working.

PRIVATE PROGRAMS IN SUPPORT OF OSTEOPATHIC STUDENTS

80. Are there privately financed statewide plans to aid osteopathic students?

The auxiliary to the American Osteopathic Association awards five $1,000 scholarships per year to citizens of the United States and Canada. These awards are based on need, scholastic standing, at least a provisional acceptance by an osteopathic college and other qualifications, such as personality, motivation, etc.

The auxiliary to the California Osteopathic Association awards one scholarship a year to an applicant to the College of Osteopathic Physicians and Surgeons in Los Angeles.

The Maine Osteopathic Association initiated a scholarship program, which provides $500 toward tuition during the first year for a student who has received his preprofessional training in an approved college or university in the State of Maine and who has been accepted for admission to any of the osteopathic colleges.

The staff of the Garden City Hospital, Garden City, Mich., initiated a scholarship program, which provides annually at least $360 to be applied toward tuition. The applicant must be a resident of the State of Michigan and must show evidence of financial need.

The eastern district of the Oklahoma Osteopathic Association has established a scholarship fund. The award is made on the basis of motivation, personality, and the probability of good professional material. Grade point average is also considered in choosing the recipient of the award. The applicant must reside in the State of Oklahoma.

The Canadian Osteopathic Association awards two scholarships a year to young men and women in Canada who are planning to study osteopathy and to practice in any Province of Canada.

81. What other private loan and scholarship programs are available to osteopathic students?

Each of the osteopathic colleges maintains some, but insufficient, loan funds for their own students. The American Osteopathic Association maintains a revolving loan fund for third and fourth year students. The loans are guaranteed by a life insurance policy and are expected to be repaid on a gradual basis when the student starts practice.

FEDERAL PROGRAMS IN SUPPORT OF OSTEOPATHIC STUDENTS

82. Does the National Science Foundation have any program in support of osteopathic education?

Although the National Science Foundation makes some short-term grants for research by students, no grants have yet been made for research by osteopathic students.

83. Does the Department of Defense have any program in support of osteopathic education?

The Department of Defense has a program of commissioning with active-duty pay a limited number of senior medical students in return for which the student agrees to serve 3 years on active duty. At the present time it does not include senior students in osteopathic colleges.

PLANS FOR EXPANSION OF TEACHING FACILITIES FOR OSTEOPATHIC COLLEGES

84. If legislation were enacted providing for Federal matching grants for the construction of teaching facilities, how many osteopathic colleges would expect to apply for grants under such legislation?

All of the six osteopathic colleges report that they would want to apply for grants under Federal legislation designed to assist in the construction of teaching or research facilities.

85. What would be the cost of the contemplated facilities?

The 6 osteopathic colleges report that they plan projects betwen July 1, 1957, and June 30, 1962, costing $21,075,000, of which about $14.5 million would be chargeable to teaching as distinguished from research.

86. Would these facilities be used exclusively for teaching purposes?

No, they would be used for research as well as teaching purposes. The schools have furnished different estimates on the extent to which the contemplated facilities would be used for teaching and research, respectively. These estimates vary from 60 to 80 percent for teaching.

87. How do the osteopathic colleges expect to raise required matching funds?

The osteopathic colleges report that they would seek to secure matching funds from the following sources: Current gifts from alumni, lay friends, the general public, foundations, industry and labor, increase in endowment, State contributions, increased income from postgraduate study, increased undergraduate fees.

88. How do the osteopathic colleges expect to meet increased costs of operation and maintenance occasioned by the new facilities?

The osteopathic colleges report that they would attempt to meet any increased operating and maintenance costs resulting from expansion of existing facilities and construction of

new facilities from the same sources from which they expect to secure matching funds for Federal grants. However, in addition to the sources mentioned in that connection, some of the colleges expect to meet any increased expenditures from increased revenues from clinical services rendered in osteopathic hospitals and clinics affiliated with these colleges.

89. Will the additional facilities enable the osteopathic colleges to increase their enrollment?

If existing facilities can be expanded and new facilities constructed with the aid of Federal funds, the 6 osteopathic colleges expect to increase their first year class enrollment by approximately 175 students. The expected increases in enrollment would vary from as few as 18 students in one college to as many as 50 students in another college.

PART FOUR

SCHOOLS OF PUBLIC HEALTH

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SCHOOLS OF PUBLIC HEALTH

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SUMMARY—SCHOOLS OF PUBLIC HEALTH

SCHOOLS OF PUBLIC HEALTH—PRESENT AND FUTURE CAPACITY

Schools of public health train doctors, nurses, engineers, and other professional health workers to identify diseases and health hazards affecting the community; to discover their causes; and to develop control methods. There are 11 such schools in the United States, 5 of which are publicly owned and operated and 6 are private, nonprofit institutions. The students in these schools are primarily public health workers who have already completed their basic professional training. Many of them are employees of State and local health departments, the United States Public Health Service, the Armed Forces, or other agencies, and are sent by the agencies which employ them to receive further training to enable them to discharge more effectively the responsibilities of their respective positions.

There are this year about 1,200 graduate and 530 undergraduate students. The number of students has increased since 1950 by about 60 percent, and enrollment is expected to increase further as additional funds for training become available and public support for public health increases.

On an average, two-thirds of the students enrolled in a school of public health are either nonresidents of the State in which the school is located, or come from foreign countries.

SCHOOLS OF PUBLIC HEALTH—GRADUATES AND DEMAND FOR GRADUATES

After graduation the students serve primarily in public health agencies—local, State, Federal, foreign or international—as health officers, public health nurses, sanitary engineers, or other public health specialists.

Sixty-five percent of recent graduates are employed by State and local health departments and 15 percent are employed by the Federal Government.

The demand for graduates of schools of public health within the United States and abroad far exceeds the output of these schools.

SCHOOLS OF PUBLIC HEALTH AND THEIR STUDENTS—FINANCIAL ASPECTS

The teaching budgets of the 11 schools of public health total $4.6 million, with an additional $4.6 million budgeted separately for research. The approximate annual cost of teaching a graduate student in a school of public health averages $4,200. Tuition and fees cover only 9 percent of basic operating costs in the publicly controlled

schools. More than two-thirds of the costs of operation of these schools are met out of State and university funds. In private schools, approximately two-thirds of the income is from endowments, gifts, and grants.

California, Michigan, Minnesota, North Carolina, and Puerto Rico—the 5 public jurisdictions which operate schools of public health are together expending $1.5 million for the operation of these schools. Two-thirds of this amount is spent by these four States and Puerto Rico on the training of nonresident and foreign students. This circumstance, among others, makes it difficult to secure increased State appropriations for the operation of these schools.

In the case of private schools, endowment income has failed to keep pace with increased operating costs, and gifts constitute an uncertain source of income.

The period of training leading to a master of public health is 1 year with an additional year required for the doctoral degree. The tuition and living expenses of most students are paid either by the Federal Government or by public agencies; State, territorial, international or foreign.

If legislation providing for Federal matching grants for the construction of teaching facilities is enacted, all but 1 of the 11 schools of public health would apply for grants for construction projects costing approximately $24.6 million. Of this total cost, almost two-thirds would be chargeable to teaching and one-third to research. The schools anticipate some difficulties in raising the necessary matching funds. The schools point out that availability of additional space alone will not enable them to increase their enrollment and that additional operating funds will be needed. The schools have found it increasingly difficult to secure such funds.

I. SCHOOLS OF PUBLIC HEALTH—PRESENT AND FUTURE CAPACITY

1. What is a school of public health?

A school of public health trains doctors, nurses, engineers, and other professional health workers to identify diseases and health hazards affecting the community, to find their causes, and to develop control methods.

A good public health worker must have, in addition to his basic skill in such a field as medicine, nursing, or engineering, the knowledge of how to apply his particular discipline to solving community health problems. The fundamental education of a physician, for instance, teaches him to diagnose and treat the ills of the individual patient. A different approach is required if he is to work in the field of public health. Here he must recognize the processes by which diseases affect the well-being of the whole community rather than of specific individuals, and mobilize the resources of the community to bear on its problems.

Public health practice had its origins in developing control measures for acute communicable diseases. The control of a cholera epidemic in London in 1850 which resulted from Snow's finding of the relationship between cholera and polluted well water is the classic example. Over the years the range of effectiveness of public health methods has grown so that now they are being used effectively to study such problems as the relationship between lung cancer and smoking, and the significance of differences in the occurrence of heart disease among ethnic groups.

The problems of controlling radiological hazards, air pollution, hazards of mining and chemical manufacturing industries, the protection of pure water supplies, and the conservation of the health of babies and children, are among the other areas included in the training provided by schools of public health.

2. How many schools of public health are there?

There are 10 in the continental United States and 1 in Puerto Rico.

3. Where are they located, how long have they been in operation, and what is their ownership?

School	Location	Ownership	Year established
Yale University	Connecticut	Private	1915
Johns Hopkins University	Maryland	do	1916
Columbia University	New York	do	1921
Harvard University	Massachusetts	do	1921
University of Minnesota	Minnesota	Public	1936
University of North Carolina	North Carolina	do	1940
University of Michigan	Michigan	do	1941
University of California	California	do	1944
Tulane University	Louisiana	Private	1947
University of Pittsburgh	Pennsylvania	do	1948
University of Puerto Rico	Puerto Rico	Public	1955

4. Are they parts of universities?

They are all integral parts of universities, either as independent units or as parts of the division of medical sciences or the medical school.

5. Are any new schools contemplated?

To the best of our knowledge, no.

6. What are the present enrollment and graduation rates of the schools of public health?

There are 1,159 regular or special students doing graduate work, and 536 undergraduate students. In 1956, 598 advanced degrees and 118 bachelor's degrees were granted.

7. What has been the enrollment trend in the past few years?

Since 1950, the number of graduate and special students has increased from 713 to 1,159, and the number of undergraduate students from 395 to 536.

8. What is the outlook for increased enrollment at schools of public health?

The schools hope that in another 3 years graduate student enrollment will increase to about 1,350 (a 16-percent increase) and that undergraduate enrollment will be up to about 650 (a 21-percent increase). The extent of the increase will be dependent on the availability of funds, teaching staff, and facilities.

9. Are there residence requirements for enrollment?

No; although tuition for nonresidents is higher than for residents in the five State university schools. Only 33 percent of the graduate and special students are from the State in which the school is located. Another 40 percent are from other States, and 27 percent are from other countries.

10. Who are the students in schools of public health?

They are primarily physicians, nurses, and members of other health professions who have already completed their basic professional training. Many of them are employees of State and local health departments, the Public Health Service, the Armed Forces, and other public and voluntary agencies, and are sent by the agency which employs them to receive further training to enable them to discharge more effectively the responsibilities of their respective positions.

This year, of the 1,159 graduate students, the largest single group consists of physicians. The 536 undergraduate students are primarily nurses completing requirements for public-health specialization.

11. Where do the students come from?

The students in the 11 schools of public health this year come from 47 States, the District of Columbia, 5 Territories and possessions, and 64 foreign countries.

II. SCHOOLS OF PUBLIC HEALTH—GRADUATES AND DEMAND FOR GRADUATES

12. What has been the trend in the number of advanced degrees granted?

In 1950, there were granted 24 doctors' and 432 masters' degrees. In 1956–57, the number of degrees is expected to increase to 40 and 656, respectively.

13. What do the graduates do?

Graduates of schools of public health serve primarily in official public-health agencies—Federal, State, local, foreign, or international—as health officers, public-health nurses, sanitary engineers, or other public-health specialists. Other graduates teach at medical schools or schools of public health, conduct research, are employed by voluntary health agencies, serve in hospitals, or engage in other activities serving the public health.

14. Where do the graduates serve?

Of the 1950–55 graduates about 15 percent are employed by the Federal Government, 55 percent by State and local health departments, and 22 percent by voluntary agencies. About 25 percent of them are employed in the State in which the school is located, 50 percent in other States, and 25 percent in foreign countries.

15. Does the output of schools of public health meet the demand for their graduates in the United States?

No. In the United States there is an unmet demand for (1) graduates of schools of public health to fill vacant positions, and (2) persons already engaged in public health work who could function more effectively in their respective positions if they could receive additional training at schools of public health.

16. How many vacancies are there in State and local health departments?

A 1951 study showed that 3,200 budgeted positions in these departments were vacant, including 458 vacancies in positions for physicians, 1,108 in positions for public-health nurses, 474 for engineers and sanitarians.

A 1953 study of the Public Health Service showed that the number of persons needed to meet minimum staffing standards was considerably larger—and that it would require 1,720 additional physicians to attain the minimum standard of 1 public health physician per 50,000 population or at least 1 public health physician for each local health unit.

17. Is there a demand for training persons who are already employed in public-health work?

State health officials recently estimated that of approximately 26,000 professional persons employed by State and local health departments only one-third had a year of public-health training, but that two-thirds of them should have such training. These estimates indicated that over 9,000 needed the training, and that over 1,300 of them might be trained each year.

18. Is there a demand by foreign countries for graduates of schools of public health?

Schools of public health in the United States now have 285 foreign graduate or special students, an increase of about 100 percent since 1949–50. Many of the foreign students are now being trained under the auspices of the International Cooperation Administration, and the World Health Organization/Pan American Sanitary Bureau. The demand of foreign countries for graduates of schools of public health can in many instances be met only by schools of public health in the United States since many foreign countries do not have their own schools of public health.

19. What will be the future demand for personnel with public-health training?

The present unmet demand represents a backlog of need for trained personnel. It will take a long time to meet this unmet demand. At the same time, such factors as the continuing increase of population, the establishment of new local health units, and the trend toward increased public support for public-health services can be expected to keep demand at a high level for the foreseeable future. The demand for research workers in public health has also increased considerably as increased appropriations have become available for public-health research.

III. SCHOOLS OF PUBLIC HEALTH AND THEIR STUDENTS—FINANCIAL ASPECTS

COST AND FINANCING OF SCHOOLS OF PUBLIC HEALTH

20. What are the expenditures of schools of public health?

In 1955–56, the basic teaching budgets for the graduate and undergraduate program in the 11 accredited schools of public health amounted to $4.6 million. Research funds budgeted separately for the same schools amounted to an additional $4.6 million.

21. Have expenditures increased over the past several years?

For the 10 schools (4 public and 6 private) which have been in operation for some time, the budgets for the past 5 years show a gradual increase both in the teaching budget for the graduate program and in the research funds budgeted separately.

22. What is the approximate cost of teaching a graduate student in schools of public health?

By dividing the school's basic teaching budget for the graduate program by the number of graduate and special students one can develop a crude index of the teaching cost per student. Based on this approach, the cost per graduate and special student in 1955–56 averaged $4,200 for the 11 schools. It has been at about this level for the past 5 years.

23. Does tuition pay the cost of education?

Tuition and fees represent only 11 percent of the income for basic operations. For public schools, 69 percent of the income in 1955–56 came from State and State university funds. For schools under private control, endowment income, gifts, and grants together made up 69 percent of the income, while 11 percent came from general university funds.

24. What are the States doing to aid schools of public health?

Four States and Puerto Rico operate schools of public health. Together they appropriate $1.5 million annually for the operation of these schools.

25. How much do the States which operate schools of public health spend on the training of nonresident and foreign students?

In 1956–57, of the total enrollment of about 600 in the five State-supported schools, only one-third were residents of the States in which they attended school while two-thirds of the students came from other States or foreign countries. Thus, California, Michigan, Minnesota, North Carolina, and Puerto Rico, which appropriated $1.5 million for their schools of public health, in effect spent $1 million on out-of-State and foreign students.

26. Can the five States which support schools of public health be expected to increase appropriations for their schools of public health?

In view of the large percentage of students from other States and foreign countries who attend schools of public health, and in view of increased competing demands of other educational programs, it will become harder and harder for the State schools of public health to secure adequate operating funds from their State legislatures.

27. What is the situation with regard to operating funds for private schools of public health?

Private schools of public health rely for their operating funds primarily on endowment income and gifts. The increase in endowment income has not kept pace with increased operating costs. Gifts from alumni and other sources are an uncertain source of support. At the present time, for example, discontinuance by a foundation of annual support of approximately $100,000 heretofore given to one school of public health, seriously jeopardizes operation of that school in the future. Since the alumni of schools of public health are almost exclusively Federal, State, or local government employees, their gifts are necessarily within a narrow range.

28. What is the Federal Government doing to aid schools of public health?

Several Federal programs provide aid to the schools for the general strengthening of their teaching programs and facilities. The National Institutes of Health award training grants which may be used, in general, either for stipends to students, or for professional and nonprofessional personnel, supplies and equipment, travel, and indirect costs. In fiscal year 1957 the schools received from the Institutes $503,074 in training grants, including $372,043 for teaching and $131,031 for stipends to students.

The Office of Vocational Rehabilitation, in addition to furnishing traineeships, provides teaching grants to pay part of the costs of establishing, expanding, or improving training programs in the professional fields which contribute to the rehabilitation of disabled persons. The grant awarded this

year to the Harvard School of Public Health for the training of medical social workers includes $8,302 for teaching.

Training grants made available by the Public Health Service to schools of public health and other institutions for establishing or improving courses in air pollution control must be used for staff, equipment, and overhead. The Schools of Public Health of Harvard, Michigan, and North Carolina Universities have received $56,529 under this program in this fiscal year.

The International Cooperation Administration has a 3-year contract with the University of Puerto Rico for its school of public health to train up to 38 Spanish-speaking ICA trainees a year. In return, the school is paid up to $100,000 a year. This payment can be used for instructors' salaries, equipment, and other teaching needs. The payment takes the place of tuition, but provides payment at a rate considerably higher than the tuition rate.

29. What is the source of research funds for the schools of public health?

Of the $4.6 million for research budgeted separately, $1.4 million (31 percent) is provided by the Public Health Service. Other Federal agencies provide 12 percent of the total, foundations 30 percent, industry 5 percent, and other sources 22 percent.

COST AND FINANCING OF AN EDUCATION IN PUBLIC HEALTH

30. How much training is required for professional specialization in public health?

The period of training in the schools of public health is normally 1 year, leading to a master of public health degree. An additional year's work is usually required for the doctoral degree. Supervised fieldwork and experience are also required, the amount differing for different professions.

The total training is longest for physicians. A physician after 4 years of medical training and a year of internship must have a year of training in public health, a year of residency in a health department, a year of supervised field training, and another 3 years of training or experience in public health to be eligible for certification by the American Board of Preventive Medicine.

31. How much does a graduate education in public health cost the student?

The tuition in schools of public health ranges from $650 to $1,200 per year in the private schools, and in the public schools from $84 to $500 for residents and from $384 to $750 for nonresidents. In computing the cost of living of a graduate student of public health, account must be taken of the fact that many of these students are in an age group where they are married and have dependent children.

32. Who pays for the training of the students?

The tuition of most students and the maintenance of many of them is paid for by a fellowship or by their employer. Federal training programs currently provide support for a total of 42 percent of the graduate and special students, including those covered by veterans' benefit programs. Another 20 percent of the students are aided by other public agencies: State and Territorial, international, and foreign. Foundations, industry, and the schools themselves help pay for the training of still another 14 percent of the students. Fewer than a quarter of the students are paying the whole cost of their own tuition, fees, and subsistence.

33. What is the Federal Government doing to aid students in schools of public health?

The Federal Government provides aid for students in schools of public health both directly under various Federal training programs and also indirectly through grants to the States for health purposes.

Of the direct Federal programs, one of the most important is the public health traineeship program, a 3-year program inaugurated in 1956 to provide graduate or specialized public-health training for professional health personnel engaged in public-health programs. Other direct programs include those of the National Institutes of Health, the International Cooperation Administration, the Atomic Energy Commission, and the Office of Vocational Rehabilitation. In addition, the Public Health Service and the three armed services, to meet their own needs for trained workers, send selected officers to the schools.

Altogether direct Federal training programs currently pay the tuition and subsistence of about 37 percent of the schools' graduate students. Another 5 percent of the students are studying under veterans' benefit programs.

Federal grants to States for health purposes may be used by the States to provide advanced training in public health for professional employees whose work is related to State or local health programs. Expenditures under the grants, including Children's Bureau grants as well as those administered by the Public Health Service, generally must be matched at least in part by State or local funds. Fourteen percent of the graduate students are sponsored by State and Territorial health departments, most of them drawing on such Federal grant funds.

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PLANS FOR EXPANSION OF TEACHING FACILITIES OF SCHOOLS OF PUBLIC HEALTH

34. If legislation were enacted providing for Federal matching grants for the construction of teaching facilities, how many schools of public health would apply for grants under such legislation?

All but 1 of the 11 schools of public health have stated that they would apply for grants under Federal legislation designed to assist in the construction of teaching or research facilities.

35. What would be the cost of the contemplated facilities?

The cost of the facilities is estimated to total $24,675,000.

36. Would these facilities be used exclusively for teaching purposes?

No; they would be used for research as well as teaching purposes. The schools have furnished estimates on the extent to which the contemplated facilities would be used for teaching and research, respectively.

37. How much of the total cost of the planned facilities would be chargeable to teaching?

Of the total cost of $24,675,000, approximately $15,650,000 would be chargeable to teaching, and $9,025,000 to research.

38. How do the schools of public health expect to raise required matching funds?

The 10 schools requiring additional space for teaching purposes do not have available any funds at the present time for the purpose of matching Federal construction grants. The privately controlled schools hope to obtain matching funds from their universities, industries, foundations, and individuals. Some of the publicly controlled schools are reasonably confident of receiving State appropriations to cover part of their needs. One publicly owned school seriously doubts its ability to secure matching funds from its State since available State university funds were used for a school building which was completed only 2 years ago.

39. Will the additional facilities enable the schools of public health to increase their enrollment?

The schools of public health state that availability of additional space alone will not enable them to increase their enrollments. To handle more students, the schools state that they will need additional operating funds.

40. How do the schools of public health expect to meet increased costs of operation and maintenance occasioned by the new facilities and any increased enrollment?

The schools of public health state that they are looking to the Federal Government, foundations, industry, or other outside sources for additional operating funds. Publicly controlled schools of public health have found it increasingly difficult to secure more State support since students of public health come so largely from outside of the State. Such small increases in fees as might be feasible would help comparatively little to meet the total need for funds. The schools have indicated that they are looking to the Federal Government and industry to pay the schools for a larger share of the costs of training students instead of supplying only the cost of tuition and living expenses for students.

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MATERIAL SUPPLEMENTARY TO LETTER OF TRANSMITTAL

Staff Letter Requesting Information

CONGRESS OF THE UNITED STATES,
HOUSE OF REPRESENTATIVES,
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D. C., August 14, 1956.

DEAR SIR: The Committee on Interstate and Foreign Commerce, on July 10, 1956, directed the committee staff to gather during the recess all possible information bearing on the subject of Federal aid to medical education and to report to the committee early in the next Congress preliminary to further hearings on the subject.

In accordance with these directions, the committee staff is seeking at this time background facts with respect to the financial needs of medical schools and the supply of and demand for medical-school applicants and graduates rather than arguments intended to support or oppose any particular form of Federal aid. This information should be available in usable form at the beginning of the 85th Congress to form the basis of the committee's further consideration of legislation to authorize Federal aid to medical education.

In order to facilitate the task of arranging this information in a usable manner, a tentative outline of topical headings has been prepared. Copies of the outline are enclosed for your use, and additional copies are available upon request.

The points of inquiry listed in the outline are intended to cover a number of relevant and significant factors with respect to which factual information is believed to be readily available. The outline does not purport to cover all factors which are relevant and significant and the staff would welcome your suggestions for the inclusion of additional topics provided adequate factual information on these points can be readily secured.

I am writing to you to request your cooperation in assembling the desired factual background information by indicating—

1. The topics included in the outline on which you can furnish information, and

2. Additional topics which should be included in the inquiry on which factual information can be readily secured.

Sincerely yours,

KURT BORCHARDT, *Legal Counsel.*

AID TO MEDICAL EDUCATION—TOPICAL OUTLINE

(NOTE.—The term "Medical Education" includes medicine, dentistry, osteopathy, and public health)

A. Supply of students:
- (1) National training capacity in each professional category
- (2) Training capacity by region and State
- (3) Utilization of foreign medical schools
- (4) Trends in supply of applicants, including expected numbers of college graduates
- (5) Admissions policies—educational and other qualifications, restrictions, preferences, etc.
- (6) Duration and cost to student of medical education

B. Graduates—Supply and demand:
- (1) Numbers of United States medical school graduates, present and prospective
- (2) Licensure of graduates of foreign medical schools
- (3) Net increment in relation to population
- (4) Examples of unmet demands for professional personnel:
  - (*a*) Public programs—Federal, State, and local, including particularly Armed Forces, veterans' programs, public health
  - (*b*) Institutions, public and private, including particularly mental institutions
  - (*c*) Professional specialties, including particularly newer specialties (psychiatry, physical medicine and rehabilitation, geriatrics, industrial medicine)
  - (*d*) Rural areas

C. Medical schools:
- (1) Present costs and financing of operations of individual institutions
- (2) Effects of medical school financing on university financing
- (3) Expansion plans of individual institutions
  - (*a*) Costs of expanded facilities
  - (*b*) Costs of expanded operations
  - (*c*) Proposals for meeting costs of (*a*) and (*b*)
  - (*d*) Problems other than financing
- (4) State programs and plans for assisting (*a*) medical schools, and (*b*) students
- (5) Regional programs and plans for assisting (*a*) medical schools, and (*b*) students
- (6) Nationwide private programs and plans for assisting (*a*) medical schools, and (*b*) students
- (7) Existing Federal programs which assist (*a*) medical schools, and (*b*) students

[Medical Education in the United States and Canada, 56th Annual Report on Medical Education in the United States and Canada by the Council on Medical Education and Hospitals of the American Medical Association, Journal of the American Medical Association, 161 : 1650–1651, August 25, 1956.]

Medical Research, Medical Education, and Medical Practice

The interdependence and interrelationship between research, education, and practice in medicine have long been acknowledged. In the past perhaps this acknowledgment has been of a superficial nature, taking expression in the stated objectives of medical schools and occasional statements or presentations from individuals engaged in one or more of these areas of activity. Much concern has been voiced as to fundamental problems involving personnel, finances, facilities, and other more indirect forces, such as advancing knowledge in science applicable to medicine, changing social structures, and aging populations, with their differing demands and effects. For the most part, however, this concern has appeared as a reflection of the preoccupation of individual segments of these interdependent areas.

There can be no dissent that the research of yesterday must become the education of today if it is to develop into the practice of tomorrow. Yet, in medicine, there has been little probing of the significant implications of this necessary orderly progression. All too often individuals primarily engaged in one activity have little concern with or knowledge of the problems, challenges, and satisfactions of another. Unfortunately, on occasion, there seems to be greater interest in matters that separate rather than in those stronger and more enduring bonds that join colleagues in these interwoven activities.

The American Foundation in a recent two-volume study entitled "Medical Research: A Midcentury Survey" presents a very thoughtful exploration of some facets of this problem. It is interesting and pertinent to note that this study resulted from an earlier interest in social and economic aspects of medical care. This earlier study convinced the foundation that social and economic problems of medical care could be brought to a permanent solution only after solution of even more challenging problems in medical education, which in turn must be considered in relation to "the broadening and deepening of fundamental research directed not only toward diagnosis and treatment of specific diseases but also toward understanding of the total living organism." The American Foundation believes that "the heart of the matter is the need of supporting and expanding research in medicine as a life science involving the whole field of biology and the contributions, in theory as well as in instrumentation, of chemistry, physics, mathematics. * * * The most urgent of present national needs in the medical field is thus conceived to be expansion and improvement of medical education integrally related to research and progressive improvement of medical practice, steadily lessening the empirical nature of applications of new knowledge to medicine."

One cannot logically dispute the observation that medicine is in itself not a science but rather a collection of the applications of chemistry, physics, and mathematics in biology, for which one must view health and disease in terms of ordered or disordered metabolism. Future knowledge must come not only from study of the content and structure of metabolic components, but also from exploration of the physical factors that control organization of these components in the

cell and its environment. Thus, though there is no medical science, medicine does provide the "commons-hall" for all sciences.

Has the pattern of medical education and practice properly taken into account this concept of medical research? The American Foundation's viewpoint is that "Wherever fundamental research exists, no doubt would be expressed that medicine—meaning medical research, medical education, medical practice—is of course rooted in biology; or that the development of biological and medical research is increasingly influenced by the contributions of chemistry and physics (and atomic energy), mathematics. This truth is as yet, however, only dimly reflected in the structure of medical education, or in the point of view of medical practice."

The protean nature of research in medicine largely accounts for the fact that so much of it takes place in a university setting where a wide spectrum of scientific disciplines are represented. This then inevitably provides the proper setting for medical education, but, without maximum utilization of the talents, attitudes, and facilities available in the university for education in medicine, the setting is not being properly used. If medical education does not adopt a pattern suitably related to research, the products of that education cannot be expected to take into medical practice the desired viewpoints.

The ready availability of financial support for applied research as compared to support for fundamental research has brought about considerable discussion of the need for an equitable balance between the two, lest the wellspring of knowledge for applied research run dry. Although this has been primarily considered as a problem important to research, it also has many significant implications in medical education and ultimately in medical practice. In recent years, serious concern has been expressed in regard to the financial needs of medical schools if they are to meet their educational obligations. It seems likely that there has been greater support of research than education, and any such imbalance cannot long be maintained without serious consequences. Shannon has recently discussed this problem and concluded "that in the long run, the best approach to either private or public support of medical research may not be to aid research solely by direct support for this function. Rather, it may be wise to strengthen the medical school and universities totally and quite directly, leaving to them more independence in arriving at decisions as to the relative emphasis to be given to the research and teaching functions. If such an approach were followed, funds for general construction would be provided, rather than funds for research construction alone. Funds for general operating expenses would be provided as well as funds for fellowships, for current support of research, or for other limited objectives." These and many similar matters are of vital importance to the three fields of research, education, and practice in medicine.

James A. Shannon, M. D., Director, National Institutes of Health, and Assistant Surgeon General, U. S. Public Health Service, Journal of the American Medical Association, 160: 1029–1033, March 24, 1956.

Trends in Medical Research

The increase in the volume of medical research has had a sharp impact not only upon the organization of research but upon medical schools. As a result of a marked increase in available funds, research

in medical schools has flourished in relation to the interrelated functions of teaching and community service. Some have interpreted this situation as indicating an overemphasis upon research that should be rectified by pruning back the volume of research that the schools conduct. Dean George Packer Berry,[3] of the Harvard Medical School, has stated the issue in terms applicable, in my opinion to the entire medical school structure of the Nation. He wrote:

> Has the medical school reached the point of saturation on research? In a certain sense, it has. * * * In a more valid sense, the school is not research poor. * * * Research and teaching must go hand in hand. The issue is to find out how to make research interlock more effectively with teaching to the end that the whole will be stronger than the parts. In the last analysis, the problem is to devise the way to make ourselves able better to afford our large research activities. Therein lies the answer to what is now an apparent paradox.

Just how the general financial underpinning of the Nation's medical schools will be strengthened in order to resolve the chronic crisis in medical school financing remains a problem for the future. Unless the unrestricted gifts of individuals increase to many times the current volume, there appear to be only two sources from which money in adequate volume might be forthcoming—corporate earnings and Federal taxes. The establishment of a sound financial structure for medical schools is most emphatically a problem that has not been resolved over the past decade. Unless effective efforts are made to resolve this problem, standards not only of medical research but of medical teaching and medical care in this country will be seriously threatened.

EDUCATION AND THE SUPPORT OF RESEARCH

This question of the interrelations between research and teaching is one that deserves further elaboration, because one encounters here a set of policy problems of utmost significance for the future. These problems are complicated, but they can be analyzed in terms of a fairly simple scheme.

Consider first the fundamentals of support for research as an entity in itself. Basically, three things are required—well-trained manpower in adequate numbers, adequate physical facilities, and funds for current support. It is the latter element of this triad that I have discussed in some detail. Conceptually, support for current research is designed to permit more adequate use of the existing supply of trained manpower and existing facilities. Conceptually, support for the training of manpower and for construction of research facilities is designed to expand the national potential for medical research. When one examines the past decade, it is evident that the major development has been expansion of support for current research, rather than support for training of manpower and for construction of research facilities. Facilities have been built and manpower has been trained, but these two elements of the triad have been subordinate to provision of funds for current research.

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[3] Berry, G. P.: Financing the Harvard Medical School, Harvard M. Alumni Bull., April 1955.

When one looks ahead, it seems fairly clear that relatively greater emphasis must be placed upon the production of investigators of high competence and upon expansion of laboratory facilities. This relative shift in emphasis has in fact begun. Both private and public organizations supporting research are paying increasing attention to the difficult problems involved in establishing the conditions necessary for stable research careers with assurance of a reasonable degree of economic security. Further efforts in this direction are called for, and the medical research plant of the nation—particularly in medical schools—should be extensively modernized and expanded.

When one thinks in such terms, the relation of research support to medical education and to other higher education becomes clear. For just as the provision of support for current research impinges upon the teaching function, construction of research facilities cannot be disentangled from the total needs of medical schools and universities for space. Similarly, it is illogical and difficult in practice to separate wholly the instruction of the potential investigator from the instruction of the total student body. Finally, a substantial proportion of the faculty in a first-rate institution must be both investigators and teachers.

One is therefore led to consider the possibility that in the long run the best approach to either private or public support of medical research may not be to aid research solely by direct support for this function. Rather, it may be wise to strengthen the medical school and universities totally and quite directly, leaving to them more independence in arriving at decisions as to the relative emphasis to be given to the research and teaching functions. If such an approach were followed, funds for general construction would be provided, rather than funds for research construction alone. Funds for general operating expenses would be provided as well as funds for fellowships, for current support of research, or for other limited objectives. Over the next decade, this question of the balance between specific and general aid will probably be close to the center of the stage as events unfold.

MATERIAL SUPPLEMENTARY TO HISTORY OF LEGISLATION TO AID MEDICAL SCHOOLS

History of Legislative Proposals for Aid to Medical Schools

81st–82d Congresses

During the first session of the 81st Congress, the Senate Committee on Labor and Public Welfare unanimously reported S. 1453 to amend the Public Health Service Act to provide grants and scholarships for education in the medical, dental, dental hygiene, public health, nursing, and sanitary engineering professions, and for other purposes (S. Rept. No. 834, August 3, 1949, 81st Cong., 1st sess.). The bill passed the Senate without opposition on September 23, 1949. During the debate, the emergency nature of the program was stressed as well as the necessity for a study of the needs of medical schools in order

to enable the Congress to give consideration to a long-range program of aid to medical education.

A bill (H. R. 5940) identical with S. 1453, as reported in and passed by the Senate, was introduced by Representative Biemiller on August 9, 1949. H. R. 5940 was reported from the Committee on Interstate and Foreign Commerce on October 11, 1949 (H. Rept. No. 1406, 81st Cong., 1st sess.). Opposition developed to the legislation subsequent to the reporting of the bill from the Committee on Interstate and Foreign Commerce.

The Committee on Interstate and Foreign Commerce gave further consideration to the legislation during the 2d session of the 81st Congress. However, because of opposition to the measure in general the committee did not report out any legislation and no action was taken on the legislation by the House of Representatives.

During the 82d Congress, S. 337 was introduced, sponsored by the full membership of the Committee on Labor and Public Welfare. S. 337 was substantially identical with S. 1453, as passed by the Senate in the 81st Congress.

On October 3 and 4, 1951, S. 337 was considered on the floor of the Senate and was recommitted.

The legislation was not considered again in the House of Representatives during the 82d Congress.

Excerpts From House Report 1406, 81st Congress, 1st Session

(To accompany H. R. 5940)

PAYMENTS TO SCHOOLS FOR COSTS OF INSTRUCTION

To assist in meeting the costs of instruction, section 372 would authorize the payment of a specified annual sum per student, with an additional sum per student for the number of students representing an overall increase over average enrollment during the three fiscal years 1947–49, to approved public or nonprofit institutions offering courses leading to a degree in medicine, osteopathy, optometry, or dentistry, to a graduate degree in public health (including a degree in hospital administration), to a degree or diploma in dental hygiene or nursing, or to a certificate or diploma as a practical nurse.

Hospital administration is offered by schools of public health. Its specific mention in the public health category is for purposes of emphasis alone.

Since the program established by the bill is a temporary one of only 5 years' duration, section 372 (a) authorizes appropriations only for the current fiscal year and the 4 succeeding fiscal years.

Subsection (b) of the new section 372 of the Public Health Service Act sets forth the amounts per student to be paid

to each school for each of the 5 fiscal years. For each of the 5 years the amounts would be:

School	Annual Federal grant per student		School	Annual Federal grant per student	
	Basic amount	Additional incentive amount		Basic amount	Additional incentive amount
Medicine, osteopathy	$500	$500	Nursing:		
Optometry	250	250	Degree school	$200	$200
Dentistry	400	400	Diploma school	150	100
Dental hygiene	150	150	Practical nursing	100	50
			Public health	1,000	1,000

Section 372 (c) establishes the method for determining the number of students with respect to whom the additional incentive payments would be made. As indicated above, these payments would be made with respect to the number of students by which the school's enrollment exceeded its average past enrollment. The number of students to be counted as "in excess of average past enrollment" would be computed on a class-by-class basis, but for each class beyond the first-year class the number of students so counted would be limited to the number so counted in the preceding year in the next lower class, and the number which could be counted in the first-year class would be limited to 30 percent of the average past enrollment in that class. The intention is to encourage schools offering training in the health professions to expand their personnel and facilities so as to educate more workers in those fields; once the enrollment had been increased and counted as new enrollment, the increment would be carried through the remaining years of training on that basis. In the fields of dental hygiene and practical nurse training, which are short courses, payments for costs of instruction are limited to the first 2 years of training and the first year of training, respectively.

* * * * *

For all types of schools, payments would be made only on account of full-time students regularly enrolled for the first semester commencing after the beginning of the fiscal year, for the period of training customarily provided in the fiscal year. Most institutions offering training in the health professions customarily operate on an academic year of approximately 9 months. Some professional schools operate on a four-quarter basis and so offer a longer period of instruction in the fiscal year than is customary. To take care of situations of this sort, where an approved school offers periods of equivalent training greater or less than that customarily provided by schools of the same class, there is specific authorization to include in the regulations provision for determining the schools' enrollment for any fiscal year in such manner as to take into account the different rate at which its students are trained. Payments would not be made on

account of students doing postgraduate work in medical, osteopathic, optometric, or dental schools.

Total payments under this section to any school (exclusive of payments used for scholarship aid by diploma schools of nursing and schools of practical nursing) for any fiscal year may not exceed 40 percent of its total costs of instruction for that year. The costs of instruction, for which these payments may be used, are defined in section 372 (a) as costs of establishing, maintaining, and enlarging staff and of maintaining and operating facilities, including the acquisition of equipment. Costs of hospital operation, costs of research projects, and costs of special-training projects outside the regular curriculum and financed by specific public or private grants are to be excluded in computing a school's total costs of instruction for the purpose of determining the 40-percent maximum, although the payments made might be available for use by the school for such purposes if they fall within the definition of costs of instruction in section 372 (a).

Section 372 (e) provides that any public or nonprofit school will be eligible to receive payments if it has been approved or accredited by a recognized accrediting body or bodies approved for the purpose by the Surgeon General after obtaining the advice and recommendations of the National Council on Education for Health Professions. The new section 374 (a) of the Public Health Service Act also conditions payments upon the filing of an application containing adequate assurances that the school will continue to provide reasonable opportunities for the admission of out-of-State students, will submit reports reasonably required by the Surgeon General to carry out his functions under the new provisions, and will comply with other conditions authorized to be prescribed by regulations.

GRANTS FOR CONSTRUCTION AND EQUIPMENT

Section 373 would authorize grants for construction and equipment representing up to 50 percent of the total costs of approved projects for the establishment of new schools or improvement or expansion of existing facilities. Since the program established by the bill is of emergency character, appropriations are authorized only for a 5-year period, but with amounts appropriated being available for the year in which appropriated and the next 2 years in order to allow for completion of the projects for which grants are made from such amounts.

Grants for construction would be approved in the order of their estimated value or importance for the alleviation of personnel shortages, with priority being given to areas which lack facilities completely or have only inadequate facilities. If the project is for construction or expansion of a teaching hospital, it would also have to be either approved under title VI of the Public Health Service Act (the Hospital Survey and Construction Act) or approvable under that title except for priority requirements or the absence of available

funds under the State's allotment. Payments for teaching hospitals would be made from funds appropriated for the purposes of this section and not from funds appropriated for purposes of title VI although they would be made in the amounts and in accordance with the conditions and procedures (including the recapture provisions) established for title VI projects.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
Washington, June 15, 1955.

Hon. J. PERCY PRIEST,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives.

DEAR MR. CHAIRMAN: This is in response to your requests of March 15, 1955, for a report on H. R. 4743, a bill to authorize a 5-year program of grants for construction of medical educational and research facilities, and of March 18, 1955, for a report on H. R. 4667, a bill to authorize a 5-year program of grants for construction of medical and dental educational and research facilities.

For the convenience of the committee this report also includes brief comment on the proposals contained in H. R. 481 with respect to Federal assistance to schools of medicine and nursing.

H. R. 4743 proposes authorization of $50 million a year for a 5-year period, beginning with fiscal year 1956, for construction grants to accredited public and private nonprofit medical schools for new schools or for the improvement and expansion of teaching and research facilities in existing schools. Amounts appropriated annually would be available for the 2 succeeding fiscal years.

There would be a ceiling of $3 million for any one school for the 5-year period. Individual construction grants would be limited to 50 percent of construction costs for existing schools, except that in the case of a school which gave satisfactory assurances of a 5-percent increase in freshman enrollment over that for the academic year 1954–55 the grant is directed to be made in an amount equal to 66⅔ percent of the cost of construction. Also, in the case of new schools, the grant could be made up to a ceiling of 66⅔ percent. An additional grant not in excess of $25,000 could be made for planning. In the case of any grant for new construction the school would have the option of allocating up to 20 percent of the amount of the grant to permanent endowment for the cost of maintenance of the new facility.

H. R. 4667 proposes a similar program of grants for a 5-year period but would also include dental schools and would authorize an additional $10 million a year to be appropriated for this purpose.

Almost without exception, the medical schools on which we must rely for the necessary numbers of properly qualified physicians, teachers, and research scientists are faced with serious financial difficulties. Many are housed in buildings half a century or more old. A new school, including teaching hospital and related research facilities, could cost in the neighborhood of $25 million. The costs involved in reconstructing and modernizing old facilities are likewise great. Costs of instruction far exceed tuition payments. Additional sources of funds, both for operating expenses and for capital investment, are urgently needed. Further increases in tuition fees would create an undesirable and major economic barrier to many qualified students.

Funds for the support of medical education raised through the strenuous efforts of private groups have not so far met the necessary costs of operation and maintenance. These facts indicate that our medical schools need some new sources of revenue as well as increased revenues from sources now available.

However, other branches of higher education are experiencing financial difficulties. Bills such as H. R. 4743 and H. R. 4667 for direct Federal aid to these branches of higher education must inevitably raise the question of the Federal Government's role in the financing of higher education in this country, and if that role is to be limited to selected areas of higher education, it would appear that some criteria for Federal aid should be established.

We believe that if Federal aid were contingent upon expansion of medical-school enrollments, there might well be a valid basis for singling out medical schools for onetime Federal grants, in that the increase in the overall supply of physicians is an important goal in improving our national health. However, H. R. 4743 is not so contingent, and hence provides no assurance of increased enrollments. It also provides for endowment funds for maintenance. We fully recognize the problems of expanding enrollments when medical schools are already running at a deficit, and the undesirability of inducing expansion unless quality can be maintained. Nevertheless, as the Federal agency concerned with the field of education generally, as well as health, we must view the question of Federal aid for higher education in its entirety.

This Department believes that it would be preferable to consider Federal aid to medical education, as proposed in H. R. 4743, as a part of a broader inquiry into the costs of higher education, the problem of how those costs can best be met, and the basic question of the appropriate role of the Federal Government. We are exploring these problems within the Office of Education, and, if implementing funds requested in the President's budget were made available, these problems would be appropriate subjects for intensive inquiry initiated upon recommendation of the National Advisory Committee on Education and conducted under the program of cooperative research (as authorized by Public Laws 531 and 532, 83d Cong., 2d sess.). The report of the Commission on Intergovernmental Relations which will soon be available may prove valuable in the development of sound positions on these questions. These same considerations are equally pertinent to the proposal for Federal aid to dental schools.

H. R. 481, also before your committee for consideration, proposes to amend the Public Health Service Act by the addition of a new title VII, part E of which would authorize a program of Federal payments to approved schools of medicine and nursing (*a*) for costs of maintenance and operation, based on enrollment with an incentive payment for increased enrollment, and (*b*) for construction and equipment up to 50 percent of the cost of the project. For grants to assist the schools in meeting operational costs, the bill would authorize annual appropriations in amounts necessary to meet the annual per student payments specified. These amounts are specified in the statute only for the 3 fiscal years 1956, 1957, and 1958. For grants for construction, the bill would also authorize appropriations in amounts necessary, but eligibility is limited to schools filing applications prior

to July 1, 1961, and grants would be required to be made in the order of estimated importance or value of the construction or equipment in alleviating the shortage of medical or nursing personnel.

The views earlier expressed in this report in connection with the general question of Federal aid to training institutions are equally applicable to this proposal. We would be particularly opposed to Federal assistance for general operational costs—for schools of nursing, for schools of medicine, or for other areas of higher education—pending thoroughgoing consideration of the entire problem of Federal aid to higher education.

On the question of construction grants for schools of nursing, so far as we know the limitations of existing physical facilities are not the major effective obstacles to desirable increases in well-qualified nursing personnel.

Unlike H. R. 4743 and H. R. 4667, the construction grant proposed in H. R. 481 is clearly linked to expansion of enrollment capacity in that it requires an appraisal of each individual construction project in terms of its contribution toward alleviating personnel shortages. Also, relationships between this program and the hospital survey and construction program are made explicit. Clarification and greater specificity on key features of the proposal would be desirable if this bill is considered for enactment.

The Bureau of the Budget advises that it perceives no objection to the submission of this report to your committee.

Sincerely yours,

ROSWELL B. PERKINS,
Acting Secretary.

THE SECRETARY OF HEALTH, EDUCATION, AND WELFARE,
Washington, January 31, 1956.

Hon. SAM RAYBURN,
Speaker of the House of Representatives.

DEAR MR. SPEAKER: I am enclosing for your consideration a draft of a bill to authorize a 5-year program of Federal construction grants to carry out the President's recommendation, made in his January 26, 1956, special message on health, for Federal assistance for construction necessary to expand and improve facilities for medical and dental research and teaching.

The proposed Medical and Dental Research and Teaching Construction Act of 1956 would amend the Public Health Service Act by adding a new title VII authorizing a 5-year program of construction grants for approved or accredited public and private nonprofit medical and dental research and teaching institutions. Funds would be made available on a project-grant basis. Schools of medicine (including schools of osteopathy and public health) and dentistry could use grant money for new facilities or for the improvement or expansion of existing facilities for either research or teaching or for combined use in research and teaching programs. Grants to other research institutions could be used only for facilities for research purposes.

Grant funds could not be used for costs of land acquisition or off-site improvements, or for projects eligible for assistance under the Hospital Survey and Construction Act. Grants could not exceed 50

percent of the necessary costs of construction. Annual appropriations would be authorized for the 5-year period (beginning July 1, 1956, and ending June 30, 1961) up to an aggregate of $250 million—$210 million for medical research and teaching facilities, and $40 million for dental research and teaching facilities.

A National Advisory Council on Medical Research and Teaching Facilities would be established to advise and assist the Surgeon General in the preparation of regulations pertaining to establishment of criteria for determining the eligibility of institutions, for allocating available funds among various types of applicants, and for approving applications (including criteria for determining relative priority among applicants), in the review of applications, and in other matters of general policy. The Council would be composed of the Surgeon General and the Commissioner of Education, as ex officio members, and 16 members appointed by the Secretary, who would also designate the chairman. At least eight of the appointed members would be required to be selected from among leaders in the fields of medical, osteopathic, dental, or public health research or education.

This legislative proposal is directed toward two primary needs which are basic to continuing progress in realizing our national health objectives. Medical and dental research and the skills necessary for the application of new knowledge resulting from that research are prerequisites to further progress in reducing the human suffering and economic losses caused by disease and disability. The medical and dental schools of the country do a large share of this research and they are the source of supply for all of our physicians and dentists, and for most of our graduate students in the basic medical sciences. We know that effective demand for medical scientists, physicians, dentists, and other skilled personnel in the health fields is increasing faster than our supplies. There is accumulating evidence that augmented research and training in these critical fields will not be possible without improvement and expansion of the present physical plant of the research and training institutions. It is clear also that the financial situation of these public and nonprofit research and training institutions is such that in all too many cases they cannot, with their present resources, undertake the rehabilitation of laboratory and teaching facilities necessary for the maintenance of present levels of quality.

We are convinced, therefore, that the national interest requires a temporary grant program to assist these institutions in meeting their essential needs for physical plant adequate to their multiple responsibilities. The proposed program is a flexible one. It is designed to assist the schools in their efforts to achieve a desirable balance between research and teaching programs—the two basic functions which support and strengthen each other—and to continue their contributions to the preparation of specialized research personnel to the training of many allied health personnel, and to the postgraduate training of physicians and dentists which plays such an important part in the maintenance of the quality of care. Achievement of a wider geographic distribution of research and teaching facilities would be a factor to be taken into consideration in the making of grants.

This assistance will make it possible for the medical and dental research and training institutions to maintain and improve the quality

of the programs they now carry and to expand their capacity to the limits of wise institutional planning. In addition, the availability of funds for construction can be expected to stimulate construction of new medical and dental schools, especially in those States in which there has been active consideration of the organization of new schools or the expansion of 2-year basic science schools to 4-year medical schools.

We shall appreciate it if you will refer the enclosed draft proposal to the proper committee for consideration.

The Bureau of the Budget advises that enactment of this proposed legislation would be in accord with the program of the President.

Sincerely yours,

M. B. FOLSOM, *Secretary.*

With regard to the relationship of programs to aid medical schools and programs to aid higher education, the following views expressed on this subject are of interest.

FIRST INTERIM REPORT TO THE PRESIDENT

THE PRESIDENT'S COMMITTEE ON EDUCATION BEYOND THE HIGH SCHOOL

November 1956—Washington, D. C.

(At p. 10)

* * * * * * *

Over and above these separate programs the Federal Government is even now being called upon for an increasing number of other forms of support such as: extension of loan programs; scholarship aid, especially for aspiring teachers; special "crash programs" for production of doctors, atomic scientists and engineers, and even contributions toward vocational training in the 13th and 14th years. The Federal Government has no clear and explicit policy to guide the consideration of such proposals.

A policy should be formulated, after full study and informed debate, with regard to the broader needs of the whole society, before crash programs to assist any one occupational group or particular type of institution are established. The Committee will have more to say on this matter in its next report.

* * * * * * *

DECEMBER 12, 1956.

Hon. DEVEREUX C. JOSEPHS,

Chairman, the President's Committee on Education Beyond the High School, Washington, D. C.

DEAR MR. JOSEPHS: The Committee on Interstate and Foreign Commerce of the House of Representatives has directed the professional staff to prepare a report on all facts relevant to medical schools.

I note that the first interim report to the President of the President's Committee on Education Beyond the High School contains on pages 10 and 11 a reference to "crash programs" for the production of doctors. I understand from Dr. Coggeshall that you have written to the Department of Health, Education, and Welfare, setting forth

your views as to the intended interpretation of this passage in connection with the administration's proposed legislation providing for matching grants for the construction of medical-school facilities. Dr. Coggeshall thought it would be preferable, instead of passing on a copy of your letter to the committee, if you as the Chairman of the President's Committee could set forth your views in a letter addressed to this committee, with regard to the intended meaning of this passage.

Sincerely yours,

KURT BORCHARDT, *Legal Counsel.*

THE PRESIDENT'S COMMITTEE ON EDUCATION
BEYOND THE HIGH SCHOOL,
Washington 25, D. C., December 14, 1956.

Mr. KURT BORCHARDT,
Legal Counsel, Committee on Interstate and Foreign Commerce,
House Office Building, Washington 25, D. C.

DEAR MR. BORCHARDT: As I told you on the telephone, I have discussed today, with Mr. Josephs, your letter of December 12 to him. At his suggestion I am enclosing a copy of a letter dated December 6, 1956, which he wrote to Secretary Folsom, which he and I believe covers the point you raised.

Sincerely yours,

ELVIS J. STAHR, Jr.

THE PRESIDENT'S COMMITTE ON EDUCATION
BEYOND THE HIGH SCHOOL,
Washington 25, D. C., December 6, 1956.

Hon. MARION B. FOLSOM,
Secretary of Health, Education, and Welfare,
Washington 25, D. C.

DEAR MARION: It is my understanding that you plan to propose legislation to provide Federal aid for the construction of medical school facilities and that certain language in the first interim report of the President's Committee has raised a question as to the Committee's possible attitude toward such a proposal.

While I am of course not at liberty to vary the language of the above report, I am glad to give you my own interpretation of the thinking which lay behind it. Very briefly, we feel it to be desirable that any Federal program which may have an impact on education beyond the high school should be based upon a considered policy which takes into account that impact and the overall needs of our society in the field of post-high school education. The Committee I am sure did not want to be understood as recommending that all further Federal activity in this field be held up until the Committee completes its own work, but it wished to voice its concern that some existing programs, and some new proposals which have been introduced in the Congress in recent years, appear to be underlain with no clear policy basis as to the proper relationship of the Federal Government to post-high school education and without proper perspective on overall needs. This does not necessarily mean that we feel there should be a single policy or philosophy to govern every conceivable Federal educational activity,

but we do feel that there should be a considered policy behind any major program which takes into account overall needs and impact.

In the case of aid to medical school construction, it is my understanding that this proposal is a part of a considered, overall policy regarding national health needs. Thus, although it has an obvious impact on post-high school education as well, I would not interpret our report as taking a position against it, any more than against a number of existing educational programs which are primarily related to considered Federal policy in fields other than education.

Sincerely,

DEVEREUX C. JOSEPHS.

The following comments with regard to the scope of Federal legislation to aid medical schools have been received from the American Association of Land-Grant Colleges and State Universities, setting forth arguments in favor of extending such legislation to schools of veterinary medicine.

AMERICAN ASSOCIATION OF
LAND-GRANT COLLEGES AND STATE UNIVERSITIES,
OFFICE OF THE EXECUTIVE SECRETARY,
Washington 6, D. C., August 15, 1956.

Mr. KURT BORCHARDT,
Legal Counsel, Committee on Interstate and Foreign Commerce,
House of Representatives, House Office Building,
Washington 25, D. C.

DEAR MR. BORCHARDT: This will be a preliminary reply to your letter of August 14, asking what contributions this association is prepared to make to the needs of the Committee on Interstate and Foreign Commerce for background facts on financial needs of medical and related schools, supply and demand of graduates, etc. I will discuss this general question with our executive committee at its meeting on September 7 and write you further after that date.

A large proportion of our member institutions are involved in the fields under study. However, they also are members of other organizations, and we need to explore the question of which is best fitted and willing to provide the needed information in various areas and on various problems, and what role the Department of Health, Education, and Welfare and other Government agencies might play in fact-gathering.

I do have one strong recommendation which can be made officially on behalf of the association since it has been the subject of formal action on several occasions: That the term "medical education"—and the survey—should be expanded to include veterinary medicine, as well as human medicine, dentistry, osteopathy, and "public health."

The research, teaching, and professional activities in the field of veterinary medicine are closely related to and in some instances inseparable from the problems of human medicine and public health. The Public Health Service employs several hundred veterinarians, as does the Department of Agriculture in its meat and other food inspection work, a public health activity. State and municipal departments of public health rely heavily on the graduates of veterinary schools of their staff in such work as milk inspection, food inspection, and other fields. In the armed services, veterinary and medical doctors work

together on research teams on many problems, and veterinarians perform many food inspections, sanitary supervision, and other functions for which it would otherwise be necessary to draft medical doctors, as the American Medical Association has recently stated.

Many of the most important medical discoveries, of direct or indirect application in the field of human health, have come through veterinary research, or through the research of basic science departments affiliated with veterinary schools or departments and agricultural experiment stations with which they are associated for research purposes. As examples, I need cite only such diseases as tuberculosis, undulant fever, spotted fever, tularemia, psittacosis as among the long list which affect animals as well as man or spend part of their life cycle in animals and are transmissible to man through handling, milk, insect bites, and the like.

Admittance to degree-granting veterinary schools and colleges at present requires a minimum of 2 years of basic college or university work, plus 4 or 5 years of professional work. Costs, supply and demand problems, etc., are in many respects comparable to those in medical education.

I am inclined to think that one major reason your committee has not had placed before it adequate information on the role, problems, and needs of veterinary education and research, is what might be termed a "jurisdictional" problem within the Federal Government. The Public Health Service of the Department of Health, Education, and Welfare employs large numbers of veterinary graduates, and the various institutes make grants to individuals associated with veterinary colleges and other research centers, for research. However, the Department of Health, Education, and Welfare does not in general maintain close liaison with veterinary colleges or veterinary education, and tends to regard that as within the province of the Department of Agriculture. The Department of Agriculture, though it employs many veterinary graduates and finances considerable research in this field, has no one whose concern is veterinary education and its problems. Thus, the veterinary colleges have not been included in the various surveys, recommendations, etc., emanating from HEW, or elsewhere in Government. Our association includes 16 of the 18 degree-granting United States veterinary colleges, and thus might be particularly well equipped to get information in this area.

In general, with respect to the fields listed, I think much of the information is available through the Association of Medical Colleges and similar associations, professional societies such as the American Medical Association, and studies such as those conducted for years at Ohio State University on applications and admissions in the health professions.

Data and attitudes on the effects of medical school financing on general university financing, expansion plans of individual institutions, etc., involve general university administrations rather than the professional schools alone, and probably will need to be obtained through some such organization as the American Council on Education, in cooperation with groups such as ours.

I will be very much interested in knowing whether or not veterinary medicine can be included in the scope of your study.

Sincerely,

RUSSELL I. THACKERY,
Executive Secretary.

APPENDIX—PART ONE
MEDICAL SCHOOLS

APPENDIX—MEDICAL SCHOOLS

The numbers in the appendix correspond to the numbers of the questions in the report. The purpose of the appendix is to give the sources of the information set forth in the questions, and to make available supplementary data.

1, 2. Medical Education in the United States and Canada. Journal of the American Medical Association 161: 1640–1641, August 25, 1956. Data reproduced below.

Approved medical schools and schools of the basic sciences in the United States, 1955–56 [1]

APPROVED 4-YEAR MEDICAL SCHOOLS

State	No.	Schools	Ownership	Total enrollment	Freshmen	Graduates July 1, 1955 to June 30, 1956
Alabama	1	Medical College of Alabama, Birmingham.	Public	296	81	73
Arkansas	2	University of Arkansas School of Medicine, Little Rock.	do	317	93	62
California	3	College of Medical Evangelists, Loma Linda; Los Angeles.	Private	385	99	84
	4	University of Southern California School of Medicine, Los Angeles.	do	271	69	68
	5	Stanford University School of Medicine, San Francisco.	do	236	58	62
	6	University of California School of Medicine, San Francisco.	Public	314	77	79
	7	University of California School of Medicine, Los Angeles.	do	168	50	36
Colorado	8	University of Colorado School of Medicine, Denver.	do	315	86	72
Connecticut	9	Yale University School of Medicine, New Haven.	Private	316	79	71
District of Columbia	10	Georgetown University School of Medicine, Washington.	do	441	115	110
	11	George Washington University School of Medicine, Washington.	do	372	102	88
	12	Howard University College of Medicine, Washington.	do	289	79	68
Florida	13	University of Miami School of Medicine, Coral Gables.	do	198	73	26
Georgia	14	Emory University School of Medicine, Emory University.	do	284	73	71
	15	Medical College of Georgia, Augusta.	Public	352	101	67
Illinois	16	Chicago Medical School, Chicago	Private	283	73	73
	17	Northwestern University Medical School, Chicago.	do	523	133	134
	18	Stritch School of Medicine of Loyola University, Chicago.	do	325	88	79
	19	University of Chicago, The School of Medicine, Chicago.	do	286	72	71
	20	University of Illinois College of Medicine, Chicago.	Public	636	167	159
Indiana	21	Indiana University School of Medicine, Bloomington; Indianapolis.	do	586	155	141
Iowa	22	State University of Iowa, College of Medicine, Iowa City.	do	441	120	110
Kansas	23	University of Kansas School of Medicine, Lawrence; Kansas City.	do	428	101	120
Kentucky	24	University of Louisville School of Medicine, Louisville.	Private	379	97	93

See footnotes at end of table, p. 195.

Approved medical schools and schools of the basic sciences in the United States, 1955–56 [1]—Continued

APPROVED 4-YEAR MEDICAL SCHOOLS—Continued

State	No.	Schools	Ownership	Total enrollment	Freshmen	Graduates July 1, 1955 to June 30, 1956
Louisiana	25	Louisiana State University School of Medicine, New Orleans.	Public	426	126	96
	26	Tulane University of Louisiana School of Medicine, New Orleans.	Private	511	131	124
Maryland	27	Johns Hopkins University School of Medicine, Baltimore.	do	286	74	69
	28	University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore.	Public	375	96	99
Massachusetts	29	Boston University School of Medicine, Boston.	Private	284	73	70
	30	Harvard Medical School, Boston	do	530	118	151
	31	Tufts University School of Medicine, Boston.	do	443	111	111
Michigan	32	University of Michigan Medical School, Ann Arbor.	Public	762	206	189
	33	Wayne State University College of Medicine, Detroit.	do	281	76	63
Minnesota	34	University of Minnesota Medical School, Minneapolis.	do	481	128	115
Missouri	35	St. Louis University School of Medicine, St. Louis.	Private	479	127	114
	36	Washington University School of Medicine, St. Louis.	do	359	87	99
Nebraska	37	Creighton University School of Medicine, Omaha.	do	297	76	77
	38	University of Nebraska College of Medicine, Omaha.	Public	331	87	83
New York	39	Albany Medical College, Albany	Private	221	64	48
	40	University of Buffalo School of Medicine, Buffalo.	do	296	85	62
	41	Columbia University College of Physicians and Surgeons, New York City.	do	462	119	118
	42	Cornell University Medical College, New York City.	do	338	84	84
	43	New York Medical College, Flower and Fifth Avenue Hospitals, New York City.	do	476	128	108
	44	New York University College of Medicine, New York City.	do	527	131	140
	45	State University of New York College of Medicine, New York City.	Public	587	151	146
	46	State University of New York College of Medicine, Syracuse.	do	286	80	71
	47	University of Rochester School of Medicine and Dentistry, Rochester.	Private	273	71	64
North Carolina	48	Duke University School of Medicine, Durham.	do	314	77	80
	49	Bowman Gray School of Medicine of Wake Forest College, Winston-Salem.	do	204	54	47
	50	University of North Carolina School of Medicine, Chapel Hill.	Public	249	68	59
Ohio	51	University of Cincinnati College of Medicine, Cincinnati.	do	338	93	85
	52	Western Reserve University School of Medicine, Cleveland.	Private	322	83	78
	53	Ohio State University College of Medicine, Columbus.	Public	573	151	144
Oklahoma	54	University of Oklahoma School of Medicine, Oklahoma City.	do	379	101	96
Oregon	55	University of Oregon Medical School, Portland.	do	295	77	71
Pennsylvania	56	Hahnemann Medical College and Hospital of Philadelphia, Philadelphia.	Private	399	109	95
	57	Jefferson Medical College of Philadelphia, Philadelphia.	do	677	176	171
	58	Temple University School of Medicine, Philadelphia.	do	488	128	125
	59	University of Pennsylvania School of Medicine, Philadelphia.	do	500	125	124

See footnotes at end of table, p. 195.

Approved medical schools and schools of the basic sciences in the United States, 1955–56 [1]—Continued

APPROVED 4-YEAR MEDICAL SCHOOLS—Continued

State	No.	Schools	Ownership	Total enrollment	Freshmen	Graduates July 1, 1955 to June 30, 1956
Pennsylvania	60	Woman's Medical College of Pennsylvania, Philadelphia.	Private	182	51	40
	61	University of Pittsburgh School of Medicine, Pittsburgh.	do	363	100	87
South Carolina	62	Medical College of South Carolina, Charleston.	Public	296	79	67
Tennessee	63	University of Tennessee College of Medicine, Memphis.	do	781	217	199
	64	Meharry Medical College, Nashville.	Private	259	75	62
	65	Vanderbilt University School of Medicine, Nashville.	do	204	51	51
Texas	66	University of Texas Southwestern Medical School, Dallas.	Public	394	102	98
	67	University of Texas Medical Branch, Galveston.	do	614	166	151
	68	Baylor University College of Medicine, Houston.	Private	342	87	77
Utah	69	University of Utah School of Medicine, Salt Lake City.	Public	209	54	40
Vermont	70	University of Vermont College of Medicine, Burlington.	do	180	50	44
Virginia	71	University of Virginia School of Medicine, Charlottesville.	do	289	77	61
	72	Medical College of Virginia, Richmond.	do	366	84	98
Washington	73	University of Washington School of Medicine, Seattle.	do	288	77	68
Wisconsin	74	University of Wisconsin Medical School, Madison.	do	325	87	79
	75	Marquette University School of Medicine, Milwaukee.	Private	394	102	87
Puerto Rico	76	University of Puerto Rico School of Medicine, San Juan.	Public	184	52	43
		Totals		28,160	7,423	6,845

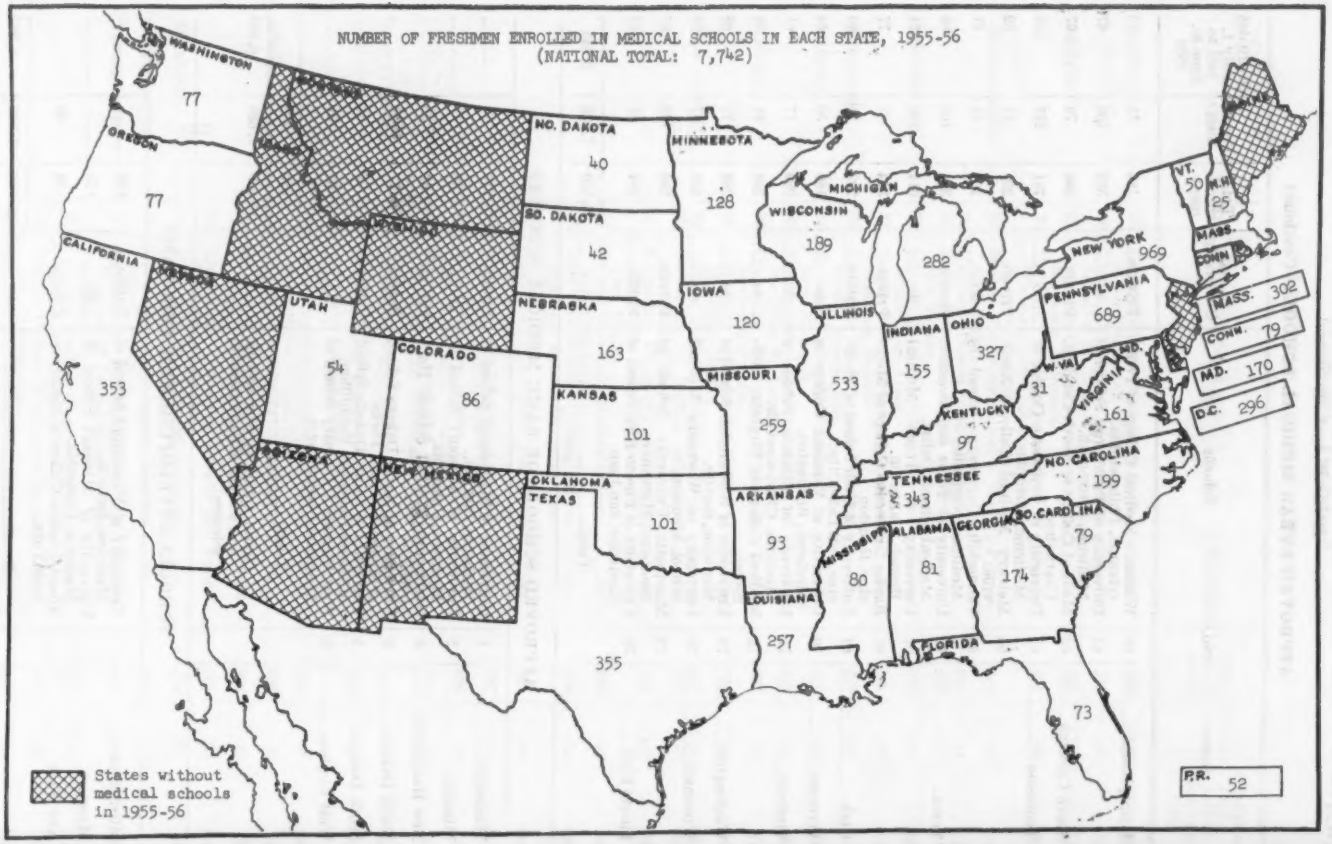
APPROVED SCHOOLS OF BASIC MEDICAL SCIENCES

Mississippi	1	University of Mississippi School of Medicine, Jackson.	Public	134	80	
Missouri	2	University of Missouri School of Medicine, Columbia.	do	88	45	
New Hampshire	3	Dartmouth Medical School, Hanover.	Private	48	25	
North Dakota	4	University of North Dakota School of Medicine, Grand Forks.	Public	77	40	
South Dakota	5	University of South Dakota School of Medical Sciences, Vermillion.	do	72	42	
West Virginia	6	West Virginia University School of Medicine, Morgantown.	do	60	31	
		Totals		479	263	
		Grand totals (4-year schools and schools of basic medical sciences).		28,639	7,686	6,845

SCHOOLS DEVELOPING NEW PROGRAMS

Mississippi		University of Mississippi School of Medicine, Jackson.	Public	[2] 28		
Missouri		University of Missouri School of Medicine, Columbia.	do	[2] 25		
New York		Albert Einstein College of Medicine of New York.	Private	56	56	
		Totals		28,748	7,742	6,845

[1] Schools developing new programs not yet eligible for full approval included at the end of the table.
[2] Third-year students.


NUMBER OF FRESHMEN ENROLLED IN MEDICAL SCHOOLS IN EACH STATE, 1955-56
(NATIONAL TOTAL: 7,742)
WASHINGTON
77
OREGON
77
CALIFORNIA
353
NEVADA
IDAHO
MONTANA
WYOMING
UTAH
54
COLORADO
86
ARIZONA
NEW MEXICO
NO. DAKOTA
40
SO. DAKOTA
42
NEBRASKA
163
KANSAS
101
OKLAHOMA
TEXAS
101
355
MINNESOTA
128
IOWA
120
MISSOURI
259
ARKANSAS
93
LOUISIANA
257
WISCONSIN
189
MICHIGAN
282
ILLINOIS
533
INDIANA
155
OHIO
327
KENTUCKY
97
TENNESSEE
343
MISSISSIPPI
80
ALABAMA
81
GEORGIA
174
FLORIDA
73
NEW YORK
969
PENNSYLVANIA
689
W. VA.
31
VIRGINIA
161
MD.
D.C.
NO. CAROLINA
199
SO. CAROLINA
79
VT.
50
N.H.
25
MASS.
CONN.
MASS. 302
CONN. 79
MD. 170
D.C. 296
P.R. 52
States without medical schools in 1955-56

3. Medical Education in the United States and Canada, Journal of the American Medical Association 161: 1653, August 25, 1956; 97: 618, August 29, 1931. Data reproduced below. See also question 5.

Schools, students, and graduates in the medical and basic sciences schools in the United States, 1931–56

Year	Schools	1st year	2d year	3d year	4th year	Total	Graduates
1930–31	76	6,456	5,538	5,080	4,908	21,982	4,735
1931–32	76	6,260	5,462	4,932	4,885	22,135	4,936
1932–33	77	6,426	5,479	5,017	4,948	22,466	4,895
1933–34	77	6,457	5,571	4,988	4,937	22,799	5,035
1934–35	77	6,356	5,642	5,142	4,905	22,888	5,101
1935–36	77	6,605	5,458	5,230	5,020	22,564	5,183
1936–37	77	5,910	5,269	5,140	5,158	22,095	5,377
1937–38	77	5,791	5,225	4,986	5,036	21,587	5,194
1938–39	77	5,764	5,160	4,947	4,921	21,302	5,089
1939–40	77	5,794	5,177	4,921	4,894	21,271	5,097
1940–41	77	5,837	5,254	4,969	4,849	21,379	5,275
1941–42	77	6,218	5,406	5,087	4,942	22,031	5,163
1942–43	76	6,425	5,828	5,278	5,100	22,631	5,223
1943–44	77	6,561	6,071	5,640	5,257	23,529	5,134
1944 (2d sess.)	77	6,648	6,140	6,084	5,794	24,666	5,169
1944–45	77	6,523	5,979	5,700	5,826	24,028	5,136
1945–46	77	6,060	5,750	5,751	5,655	23,216	5,826
1946–47	77	6,564	5,575	5,767	5,994	23,900	6,389
1947–48	77	6,487	5,758	5,154	5,340	22,739	5,543
1948–49	78	6,688	6,194	5,702	5,086	23,670	5,094
1949–50	79	7,042	6,344	6,079	5,638	25,103	5,553
1950–51	79	7,177	6,690	6,263	6,056	26,186	6,135
1951–52	79	7,436	6,864	6,577	6,195	27,076	6,080
1952–53	79	7,425	7,063	6,725	6,475	27,688	6,668
1953–54	80	7,449	7,068	6,983	6,727	28,227	6,861
1954–55	81	7,576	7,104	6,957	6,946	28,583	6,977
1955–56	82	7,686	7,174	6,893	6,886	28,639	6,845
1955–56 (with new programs)	83	7,742	7,174	6,946	6,886	28,748	6,845

4. Medical Education in the United States and Canada, Journal of the American Medical Association 161: 1643, August 25, 1956. Data reproduced below.

Medical schools currently developing 4-year programs [1]

Name of institution	New or extended development	Estimated graduation date of first class
University of Mississippi School of Medicine	Formerly 2-year school	1957
University of Missouri School of Medicine	do	1957
West Virginia University School of Medicine	do	1961
Seton Hall College of Medicine and Dentistry	Completely new school	1960
University of Florida School of Medicine	do	1960
University of Kentucky School of Medicine	do	1963

[1] Does not include Albert Einstein College opened in 1955–56.

5. Medical Education in the United States and Canada, Journal of the American Medical Association 161: 1640–1643, August 25, 1956; 97: 618–619, August 29, 1931. Data reproduced below compiled by Division of Public Health Methods, Public Health Service.

New 4-year medical schools established since 1930–31

NEW SCHOOLS ESTABLISHED

Year	School	Public	Private
1931	Louisiana State University	X	
1943	Southwestern Medical School	X	
1945	University of Washington, Seattle	X	
1950	University of Puerto Rico	X	
1951	University of California, Los Angeles	X	
1952	University of Miami		X
1955	Albert Einstein College of Medicine		X
1956	Seton Hall College of Medicine		X
1956	University of Florida	X	
	2-YEAR SCHOOLS EXPANDED TO 4-YEAR SCHOOLS		
1945	Medical College of Alabama	X	
1952	University of North Carolina	X	
1942	Bowman Gray School of Medicine		X
1943	University of Utah	X	
1931	University of Southern California		X
	2-YEAR SCHOOLS CURRENTLY DEVELOPING 4-YEAR PROGRAMS		
1959	West Virginia University	X	
1955	University of Mississippi	X	
1955	University of Missouri	X	

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6. Medical Education in the United States and Canada, Journal of the American Medical Association 161: 1640–1641, August 25, 1956.

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7. Medical Education in the United States and Canada, Journal of the American Medical Association 159: 580–582, October 8, 1955. Text and table 10 reproduced below.

TEACHING RESPONSIBILITIES FOR OTHER THAN UNDERGRADUATE MEDICAL STUDENTS, 1954–55

In addition to their responsibilities in undergraduate medical education, all the medical schools in the United States and all but one in Canada instruct students in other classifications. The number of individuals other than undergraduate medical students who receive all or part of their instruction from medical faculties continued in 1954–55 to be twice as great as the total number of undergraduate medical students. For 1954–55 the medical schools in the United States reported 57,273 students other than undergraduate medical students, and Canadian schools reported 6,211 such students. This

represented a decline of 2,107 in the United States schools and an increase of 930 in the Canadian schools. Table 10 analyzes the number and distribution of students other than undergraduate medical registrants for whom medical schools have teaching responsibilities.

The greatest increases in 1954–55 in the United States schools were in connection with continuation courses for physicians in which 3,504 more were enrolled than in the previous year and an increase of 575 dental students over those registered 1953–54. There were decreases in arts and science students (2,580), nursing students (465) and student technicians (231). Graduate students working toward advanced degrees in basic medical sciences and clinical areas constitute an important and challenging aspect of medical school responsibility. This phase of medical school activity is discussed more fully in the section of this report dealing with graduate medical education.

As was suggested in the last education number of The Journal, the teaching responsibilities of medical schools for other than undergraduate medical students carry significant budget and personnel implications that necessitate full interpretation by responsible administrators. Interpretation of the true cost of medical education necessitates the evaluation of these other teaching activities and their deduction from overall budgets where they are included in medical school accounting. The assumption of any teaching responsibility implies the medical students in a complex university setting or wherever others are also taught by the school can be determined only by utilizing effective budget and accounting methods.

The question as to whether teaching responsibilities for other than undergraduate medical students may unduly dilute either teaching or research, or both, is a matter of local institutional policy. If a medical school administration is fully aware of the implication of additional teaching services from the standpoint of budget, personnel, and facilities and such needs are satisfied, there is no logical reason why either teaching or research in medicine should be diluted in any sense. In fact, with adequate budgets, personnel, and facilities, departments of basic medical sciences carrying such responsibilities may possess even greater potential in both teaching and research than would be the case if their activities were restricted solely to undergraduate medical students and to graduate students in their specific fields.

TABLE 10.—*Teaching responsibilities for other than undergraduate medical students, 1954–55*

School	Dental students	Pharmacy students	Nursing students	Student technicians	Arts and science students	Interns	Residents	Physicians with fellowship appointments	Physicians seeking advanced degrees		Other graduate students in basic medical sciences		Physicians in continuation courses	Total
									M. S. degree	Ph. D. degree	M. S. degree	Ph. D. degree		
UNITED STATES														
Medical College of Alabama	100	0	149	49	0	16	76	15	0	0	13	8	19	445
University of Arkansas	0	0	0	24	0	18	37	0	0	0	9	1	0	89
College of Medical Evangelists	91	0	165	35	0	23	40	6	3	0	7	0	160	530
Stanford University	0	0	131	10	0	0	0	0	0	2	10	20	210	383
University of California, San Francisco	283	266	150	54	0	58	166	4	0	0	10	19	533	1,543
University of California, Los Angeles	0	0	230	0	0	0	15	1	0	0	1	3	883	1,133
University of Southern California	0	0	0	0	0	0	0	0	0	0	23	40	773	836
University of Colorado	0	0	158	40	0	48	215	0	0	0	0	0	1,421	1,882
Yale University	0	0	130	0	0	46	75	77	0	0	51	29	345	753
George Washington University	0	30	0	6	158	22	40	16	0	0	61	57	214	604
Georgetown University	188	0	183	0	0	11	80	13	19	3	1	10	0	508
Howard University	111	64	42	20	30	3	42	4	0	0	0	0	0	316
Emory University	207	0	85	0	8	62	139	26	0	0	1	8	119	655
Medical College of Georgia	0	0	112	2	4	15	49	0	0	0	1	0	0	183
Chicago Medical School	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Northwestern University	0	0	377	38	10	0	0	0	13	12	26	13	77	566
Stritch School of Medicine	0	0	0	0	0	0	19	0	1	1	23	20	0	64
University of Chicago	2	0	165	0	0	36	119	36	0	9	27	78	0	472
University of Illinois	199	153	18	0	22	22	114	14	9	1	57	9	47	665
Indiana University	125	0	531	15	692	28	139	5	0	0	4	5	471	2,015
State University of Iowa	55	50	179	22	575	20	140	10	0	4	10	5	313	1,383
University of Kansas	0	27	160	115	347	20	105	4	2	0	9	7	2,034	2,830
University of Louisville	230	0	172	12	6	29	83	5	0	0	30	0	0	567
Louisiana State University	0	0	32	0	0	0	0	0	0	0	3	6	0	41
Tulane University	0	0	150	0	20	86	93	19	2	0	9	17	206	602
Johns Hopkins University	0	0	0	0	0	0	0	20	0	0	0	6	66	92
University of Maryland	0	43	28	9	0	22	53	19	0	0	5	7	71	257
Boston University	0	0	65	13	24	0	7	0	0	0	21	13	0	143
Harvard Medical School	28	0	0	0	0	0	0	0	0	0	1	60	489	578
Tufts College Medical School	277	0	0	0	0	0	0	0	0	0	9	7	72	365
University of Michigan	233	92	476	64	255	51	190	0	0	0	0	0	638	1,999
Wayne University	0	0	0	15	0	0	65	0	65	11	35	11	205	407
University of Minnesota	260	81	215	0	1,121	0	0	0	502	113	43	109	1,297	3,741
University of Mississippi	0	45	23	0	0	0	0	0	1	0	2	0	0	71
St. Louis University	157	0	189	69	0	14	38	0	5	0	9	19	0	500
University of Missouri	0	0	30	0	803	0	0	0	0	0	9	5	0	847
Washington University	0	0	0	94	0	57	131	67	0	0	27	1	6	383

St. Louis University	0	0	0	0	0	0	0	0	0	0	9	5	0	847
University of Missouri	0	0	30	0	803	0	0	0	0	0	27	1	6	383
Washington University	0	0	0	94	0	57	131	67	0	0				
Creighton University	91	0	122	0	5	0	0	0	17	0	6	0	118	359
University of Nebraska	0	0	111	23	0	11	35	2	0	0	18	2	0	202
Dartmouth Medical School	0	0	129	20	0	14	53	3	0	0	0	0	0	219
Albany Medical College	0	0	125	0	0	41	50	0	0	0	8	1	642	867
University of Buffalo	125	65	38	0	0	0	0	2	0	1	2	0	339	572
Columbia University	225	0	457	0	0	0	0	0	0	0	0	0	550	1,232
Cornell University	0	0	74	0	0	33	151	11	0	0	1	1	152	423
New York Medical College	0	0	193	0	0	0	20	0	5	0	0	0	62	280
New York University	0	0	542	0	146	0	0	46	0	0	9	18	0	761
State University of New York, New York City	0	0	0	0	0	61	198	10	0	0	0	0	0	269
State University of New York, Syracuse	0	0	213	0	0	26	80	6	0	0	0	15	165	505
University of Rochester	0	0	263	22	120	54	94	25	6	2	51	62	0	699
Duke University	0	0	229	12	0	59	155	22	0	0	16	10	16	519
University of North Carolina	211	142	140	10	20	26	55	11	0	0	[1] 59	12	470	1,156
Bowman Gray School of Medicine	0	0	165	23	0	9	65	2	0	0	1	0	0	265
University of North Dakota	0	0	186	27	63	0	0	0	0	0	3	2	0	281
Ohio State University	588	16	420	35	1,001	0	0	0	0	0	53	28	0	2,141
University of Cincinnati	0	0	0	0	0	52	148	40	0	13	0	4	902	1,159
Western Reserve University	117	0	165	17	0	0	0	0	0	0	19	19	117	454
University of Oklahoma	0	0	120	36	0	17	65	2	3	0	15	21	0	279
University of Oregon	0	0	386	23	0	19	64	1	1	0	11	0	550	1,055
Hahnemann Medical College	0	0	116	26	0	0	0	0	0	0	11	2	[1] 67	222
Jefferson Medical College	0	0	0	0	0	25	80	10	0	0	4	15	1,355	1,489
Temple University	0	0	168	22	0	18	0	0	83	4	0	1	34	330
University of Pennsylvania	136	0	0	0	0	32	190	0	0	0	11	55	0	424
University of Pittsburgh	0	0	750	0	0	9	178	0	0	0	7	12	201	1,157
Woman's Medical College of Pennsylvania	0	0	60	0	0	5	16	6	0	0	0	0	0	87
Medical College of South Carolina	0	73	147	7	0	6	46	0	0	0	7	5	84	375
University of South Dakota	0	0	10	5	140	0	0	0	0	0	7	0	2	164
Meharry Medical College	122	0	42	38	0	13	23	1	0	0	2	0	0	241
University of Tennessee	284	195	215	[1] 43	0	0	0	0	23	0	33	0	116	909
Vanderbilt University	0	0	0	0	0	31	70	2	0	0	2	11	0	116
Baylor University	0	0	0	6	0	41	127	6	3	0	13	9	0	199
Southwestern Medical College	0	0	73	0	5	97	196	0	0	1	6	1	1,139	1,518
University of Texas	0	0	250	43	6	20	127	6	0	0	11	12	0	475
University of Utah	0	33	27	7	253	29	72	23	1	4	11	17	0	477
University of Vermont	0	0	32	30	4	21	26	32	0	0	0	0	170	315
Medical College of Virginia	207	227	246	64	61	45	105	1	1	0	3	7	0	967
University of Virginia	0	0	262	6	0	24	79	22	0	0	0	2	177	572
University of Washington	286	35	156	38	2,000	60	100	18	0	1	10	41	535	3,280
West Virginia University	0	37	0	25	12	0	0	0	0	0	5	0	0	79
Marquette University	331	0	0	83	0	30	110	0	6	0	37	0	58	655
University of Wisconsin	0	52	224	327	191	17	70	1	0	0	4	5	129	1,020
University of Puerto Rico	0	0	17	15	2	0	0	1	1	0	21	0	0	57
Total	5,269	1,726	11,218	1,733	8,104	1,652	5,118	673	772	182	1,024	983	18,819	57,273

[1] Some of these may also be candidates for Ph. D. degrees.

Reply to Staff Outline Received From American Medical Association Reproduced Below

Other students.—Medical schools teach twice as many "other students" as undergraduate medical students: 57,273 compared to 28,639. The breakdown of other students is as follows:

Physicians in continuation courses	18, 819
Physicians seeking advanced degrees	954
Physicians with fellowship appointments	673
Residents	5, 118
Interns	1, 652
Arts and science students	8, 104
Student technicians	1, 733
Nursing students	11, 218
Pharmacy students	1, 726
Dental students	5, 269
Other graduate students in basic medical sciences	2, 007
Total	57, 273

See also Medical Education in the United States and Canada, Journal of the American Medical Association 161: 1648–1650, August 25, 1956. Text reproduced below.

Teaching Responsibilities for Other Than Undergraduate Medical Students, 1955–56

In order to assist medical schools in interpreting their overall teaching responsibilities, for the past several years these activities have been presented in this report in tabular form. This material has been widely used both locally and nationally to portray to university authorities, legislative bodies, the profession, and the public the magnitude of the educational activity of the medical schools over and above their primary function in undergraduate medical education.

In the questionnaire sent to medical schools to collect information for this year's report, medical school officials were asked, as in previous years, to indicate the number of physicians attending postgraduate courses. Because of a special study, a separate questionnaire dealing only with postgraduate activities was mailed to medical schools. Included in this material was a question also asking for the number of physicians in postgraduate courses. Responses to the same question in these two questionnaires on the part of the same medical schools, frequently over the signature of the same administrative officer of the school, were so frequently and so totally disparate as to indicate their lack of validity.

Invalid data are not only useless but also misleading. Rather than attempt to compromise with validity or completeness, this table has been omitted in this current report. It is hoped that accurate data can be obtained in the future, so that this important information can again be made generally available.

OPPORTUNITIES AND ENROLLMENTS FOR GRADUATE WORK IN BASIC SCIENCES

The expanding demand for medical services and the increasing thirst for new knowledge to make such service more effective are necessarily dependent on the availability of personnel for teaching and investigation in medicine. Since it is generally agreed that the most crucial personnel need is in the basic science area, data were collected from the medical schools regarding current enrollment of graduate students in the basic science disciplines and regarding similar educational opportunities for which there is no present enrollment. This material is presented in table 14.

All but 6 of the 83 medical schools now in operation offer work for advanced degrees in the basic sciences at either the master's or the doctoral levels or both. Of the 77 schools offering such graduate study, all but 4 have students enrolled in one or more of the disciplines. Ten schools have enrollments only for master's degrees, and 10 have enrollments only for the doctoral degree. There are 1,119 students working toward the master's degree and 1,292 toward the doctoral degree. At both levels, most enrollments are in biochemistry, with microbiology having the next highest number.

Information was also collected as to those schools that offer advanced degrees in the clinical sciences. This material does not appear in this report, since the granting of degrees in clinical fields is largely a matter of policy determined by each school. Considerable information regarding clinical graduate education is easily accessible in the annual report by the council on internships and residencies, which will appear this year in the September 22 issue of the Journal. Upon request, information will be furnished concerning those schools that offer advanced degrees in clinical fields and the specific subjects involved.

TABLE 14.—*Opportunities and enrollments for graduate work in basic medical sciences*

	Enrollment for masters degree							Enrollment for doctor of philosophy degree							Other courses offered						
	Anatomy	Biochemistry	Biophysics	Microbiology	Pathology	Pharmacology	Physiology	Anatomy	Biochemistry	Biophysics	Microbiology	Pathology	Pharmacology	Physiology	Anatomy	Biochemistry	Biophysics	Microbiology	Pathology	Pharmacology	Physiology
Medical College of Alabama	3	6	----	----	2	2	2	----	7	----	----	----	2	2	X	----	----	----	----	----	----
University of Arkansas	----	5	----	----	----	----	2	----	1	----	----	----	1	1	X	----	----	----	----	----	----
College of Medical Evangelists	----	3	----	1	----	----	3	----	----	----	----	----	----	----	----	----	----	----	----	X	----
University of Southern California	5	13	----	2	----	----	4	----	24	----	1	----	5	9	----	X	----	----	----	----	----
Stanford University	----	----	----	9	----	----	1	2	----	----	12	----	----	8	----	----	----	----	----	----	----
University of California, San Francisco	2	----	----	----	----	----	----	1	17	----	----	----	----	3	----	----	----	----	----	----	----
University of California, Los Angeles	----	----	1	----	----	3	4	7	4	3	----	----	----	5	----	----	----	----	----	----	----
University of Colorado	2	1	----	5	----	----	----	4	1	2	7	----	4	7	----	----	----	----	----	----	----
Yale University	----	----	----	----	----	----	----	2	11	----	14	----	2	2	----	----	----	----	----	----	----
Georgetown University	----	3	----	1	2	1	1	1	1	----	5	----	5	3	----	----	----	----	----	----	----
George Washington University	3	27	----	16	----	3	5	3	11	----	23	----	9	10	----	----	----	----	----	----	----
Howard University	----	----	----	----	----	1	2	----	----	----	----	----	----	----	----	----	----	----	----	----	----
University of Miami	1	1	----	3	----	1	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Emory University	3	----	----	2	----	----	----	1	5	----	1	----	3	----	----	----	----	----	----	----	X
Northwestern University	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	----	----	----	----	----	----	----
Stritch School of Medicine	10	8	----	6	----	6	2	----	4	----	2	----	8	2	----	----	----	----	----	----	----
University of Chicago	5	4	----	10	----	1	5	6	20	----	14	----	14	6	----	----	----	----	----	----	----
University of Illinois	3	7	----	9	4	6	12	4	12	----	5	1	9	8	----	----	----	----	----	----	----
Indiana University	----	----	----	----	----	----	----	2	----	----	3	----	----	----	----	----	----	----	----	----	----
State University of Iowa	31	12	----	10	----	4	6	5	3	----	2	----	----	2	----	----	----	----	----	----	----
University of Kansas	7	----	----	5	----	----	4	8	9	----	1	----	1	3	----	----	----	----	----	----	----
University of Louisville	1	6	----	6	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Louisiana State University	----	6	----	4	----	----	----	----	----	----	----	----	----	1	----	----	----	----	----	----	----
Tulane University	2	4	----	4	----	1	3	2	9	----	8	----	----	----	----	----	----	----	----	----	----
Johns Hopkins University	----	----	----	----	----	----	----	----	5	----	----	----	----	4	----	----	----	----	----	----	----
University of Maryland	----	----	----	----	----	----	----	2	3	----	1	----	2	1	----	----	----	----	----	----	----
Boston University	----	11	----	2	3	2	----	----	7	----	4	1	4	5	----	----	----	----	----	----	----
Harvard Medical School	----	1	----	1	----	----	----	----	26	----	5	1	3	4	X	----	----	----	----	----	----
Tufts University	----	----	----	----	----	----	----	----	5	----	----	----	5	3	----	----	----	----	----	----	----
University of Michigan	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	----	----	----	----	----	----	----
Wayne State University	----	1	----	1	----	----	5 4	2	9	----	1	----	----	5 2	----	----	----	----	----	----	----
University of Minnesota [6]	20	23	4	28	15	14	18	----	----	----	----	----	----	----	----	----	----	----	----	----	----
University of Mississippi	----	----	----	----	----	----	1	----	----	----	----	----	----	1	----	----	----	----	----	----	----
St. Louis University	6	6	----	----	----	----	1	5	9	----	1	----	----	2	----	----	----	----	----	X	----
University of Missouri	4	----	----	4	----	----	5 2	1	1	----	----	----	----	5 1	----	----	----	----	----	----	----
Washington University	1	1	----	----	----	1	----	4	3	----	2	2	3	----	----	----	----	----	----	----	----

Creighton University		2		1			[1]													
University of Nebraska	4	2					[5] 7		1					[5] 3				X	X		X
Albany Medical College	2	3		3	1	2															X
Albert Einstein University															X	X		X	X	X	X
University of Buffalo		3		2		2	4	1	1		1		1						X		
Columbia University								2	12		6		3	6							
Cornell University								1	3		2		1	5							
New York University	3	2		1				5	14		3	2									
State University of New York, Syracuse									1		1		2	1							
University of Rochester		3	13	9		5	3	3	12	16	5	2	10	8							
University of North Carolina				9			1		5		2			3							
Duke University	2			1			[6] 4	3	11		8			[5] 3							
Bowman Gray School of Medicine																X		X			X
University of North Dakota	1	3		2			[5] 1		2					[5] 1							
University of Cincinnati									2		2		4	3	X				X		
Western Reserve University	1	7		1	2		3	3	17		8	1		3							
Ohio State University	4	11		10	6		4	8	4		4	1		3							
University of Oklahoma	1	3		1	1	2	3	2	7		6	1	3	1						X	
University of Oregon	3	6			1		2											X			
Hahnemann Medical College		2		2		3					1		1		X				X		X
Jefferson Medical College				2		1	2				2		5	5							
Temple University	2	2				2	3				2			2							
University of Pennsylvania				15			4	8	13		31	1	2	14							
Woman's Medical College															X	X		X	X	X	X
University of Pittsburgh		30							20												
Medical College of South Carolina	1						1		2				3								
University of South Dakota	1	1		6			[5] 2	1													
University of Tennessee		2				2	1	1	8			4	2	7							
Meharry Medical College																X		X			X
Vanderbilt University		2		2					7		2		3	2							
Southwestern Medical School				2						1	3					X					
University of Texas	5	3		2			1	1	2				3	1					X		
Baylor University	6	4		6	1		1	2	3		1			1						X	
University of Utah	3	8		7		2		3	4		7		2								
University of Vermont		2		2	1	1	1								X						
University of Virginia							1				3			1	X	X				X	
Medical College of Virginia	1	1											9					X	X		
University of Washington		3		13		5	3	1	22		16		3	9							
West Virginia University		3		5																	
University of Wisconsin	2							2	2		10	5	2	6							
Marquette University	2	2		4	4		8														
Total	153	251	18	237	43	73	145	109	382	22	238	22	142	183							

[1] 30 candidates, subject not specified.
[2] 23 doctor of philosophy candidates, subject not specified.
[3] 169 candidates, subject not specified.
[4] 147 candidates, subject not specified.
[5] Includes pharmacology.
[6] An unknown number of these may be for doctoral degrees, since level of work was not specified.

8. Medical Education in the United States and Canada, Journal of the American Medical Association 161: 1653, August 25, 1956. See also question 3.

9–11. Medical Education in the United States and Canada. Journal of the American Medical Association 161: 1640–1641, August 25, 1956; 147: 136–137, September 8, 1951; 97: 618–619, August 29, 1931. Data reproduced below compiled by Division of Public Health Methods, Public Health Service.

Number of freshmen enrolled in public and private medical schools, 1930–31, 1950–51, and 1955–56

School	Number of freshmen			Change in enrollment	
	1930–31	1950–51	1955–56	1930–31 to 1955–56	1950–51 to 1955–56
Total enrollment	6,456	[1] 7,177	7,742	+1,286	[2] +565
Publicly owned schools	2,767	3,377	3,754	+987	+377
Alabama	53	56	81	28	25
Arkansas	61	90	93	32	3
California, San Francisco	60	72	77	17	5
California, Los Angeles			50	50	50
Colorado	67	84	86	19	2
Georgia	41	79	101	60	22
Illinois	182	169	167	−15	−2
Indiana	134	151	155	21	4
Iowa	97	121	120	23	−1
Kansas	80	105	101	21	−4
Louisiana		126	126	126	0
Maryland	138	100	96	−42	−4
Michigan	134	165	206	72	41
Wayne (Detroit)	88	68	76	−12	8
Minnesota	153	128	128	−25	0
Nebraska	99	88	87	−12	−1
State University of New York (Long Island)	119	149	151	32	2
State University of New York (Syracuse)	52	77	80	28	3
North Carolina	42	59	68	26	9
Cincinnati	90	90	93	3	3
Ohio State	100	150	151	51	1
Oklahoma	76	80	101	25	21
Oregon	65	73	77	12	4
South Carolina	41	62	79	38	17
Tennessee	112	146	217	105	71
Southwestern		103	102	102	−1
Texas	107	163	166	59	3
Utah	36	52	54	18	2
Vermont	44	47	50	6	3
Virginia, University of	65	74	77	12	3
Virginia, Medical College of	88	84	84	−4	0
Washington, Seattle		75	77	77	2
Wisconsin	126	85	87	−39	2
Puerto Rico		[3]	52	52	52
Mississippi	33	61	80	47	19
Missouri	40	45	45	5	0
North Dakota	34	36	40	6	4
South Dakota	28	33	42	14	9
West Virginia	82	31	31	−51	0
Privately owned schools	3,689	3,805	3,988	+299	+183
Medical Evangelists	116	97	99	−17	2
Southern California	54	69	69	15	0
Stanford	51	62	58	7	−4
Yale	47	66	79	32	13
Georgetown	166	122	115	−51	−7
George Washington	89	91	102	13	11
Howard	61	75	79	18	4
Miami (Coral Gables)			73	73	73
Emory	63	72	73	10	1
Chicago Medical	[3]	72	73	73	1

[1] School distribution figures add to 7,182; 7,177 is revision made by AMA.
[2] School distribution figures add to 560; 565 is revision made by AMA.
[3] Not approved by AMA as of this date and no freshmen carried in AMA totals.

Number of freshmen enrolled in public and private medical schools, 1930–31, 1950–51, and 1955–56—Continued

School	Number of freshmen			Change in enrollment	
	1930–31	1950–51	1955–56	1930–31 to 1955–56	1950–51 to 1955–56
Northwestern	128	130	133	5	3
Stritch (Loyola)	153	92	88	−65	−4
Chicago, University of	107	76	72	−35	−4
Louisville	87	96	97	10	1
Tulane	130	130	131	1	1
Johns Hopkins	70	78	74	4	−4
Boston University	67	73	73	6	0
Harvard	125	113	118	−7	5
Tufts	123	112	111	−12	−1
St. Louis	170	129	127	−43	−2
Washington (St. Louis)	78	88	87	9	−1
Creighton	104	75	76	−28	1
Albany	36	55	64	28	9
Buffalo	78	74	85	7	11
Columbia	114	120	119	5	−1
Cornell	59	81	84	25	3
New York Medical	107	129	128	21	−1
New York University	129	125	131	2	6
Rochester	47	70	71	24	1
Albert Einstein			56	[1] 56	56
Duke	52	81	77	25	−4
Bowman Gray (Wake Forest)	30	53	54	24	1
Western Reserve	75	81	83	8	2
Hahnemann	155	105	109	−46	4
Jefferson	156	168	176	20	8
Temple	111	135	128	17	−7
Pennsylvania	122	125	125	3	0
Woman's Medical	33	50	51	18	1
Pittsburgh	67	101	100	33	−1
Meharry	56	65	75	19	10
Vanderbilt	52	52	51	−1	−1
Baylor	123	92	87	−36	−5
Marquette	75	101	102	27	1
Dartmouth	23	24	25	2	1

[1] Not approved by AMA as of this date but freshmen are counted in AMA totals.

Established medical schools with changes of 30 or more freshman places between 1930–31 and 1955–56

	Increase in freshmen places
Public schools:	
Arkansas	32
Georgia	60
Michigan	72
New York (Long Island)	32
Ohio State	51
South Carolina	38
Tennessee	105
Texas, Medical Branch	59
Mississippi	47
Private schools:	
Yale	32
Pittsburgh	33

	Decrease in freshmen places
Public schools:	
Maryland	42
Wisconsin	39
West Virginia	51
Private schools:	
Georgetown	51
Stritch (Loyola)	65
Chicago, University of	35
St. Louis	43
Hahnemann	46
Baylor	36

Distribution of increases in freshman enrollment between new schools and established schools

	Change in enrollment	
	1930–31 to 1955–56	1950–51 to 1955–56
Total enrollment	+1,286	+565
Public	987	382
Private	299	183
Established schools	677	334
Public	580	280
Private	97	54
New or newly approved schools	609	231
Public	407	102
Private	202	129

12. Medical Education in the United States and Canada, Journal of the American Medical Association 161: 1643–1644, August 25, 1956; and previous annual numbers.

13. Medical Education in the United States and Canada, Journal of the American Medical Association 161: 1640–1641, August 25, 1956. Data presented below summarized by Division of Public Health Methods, Public Health Service.

Distribution of 4-year medical schools by size of freshman class, 1955–56

Size of freshman class:	*Number of schools*	*Size of freshman class:*	*Number of schools*
Total	76	100 to 124	13
		125 to 149	9
Under 50	0	150 to 174	5
50 to 74	18	175 to 199	1
75 to 99	28	200 and over	2

14, 15. Deitrick, John E., and Berson, Robert C., Medical Schools in the United States at Mid-Century. New York, McGraw-Hill Book Co., Inc., 1953, p. 319; Association of American Medical Colleges, Statement on the Future Need for Physicians, 2 pp., processed (printed in Journal of Medical Education 32: 47–48, January 1957).

RESOLUTION ADOPTED BY ASSOCIATION OF AMERICAN MEDICAL COLLEGES AT ITS ANNUAL MEETING HELD IN COLORADO SPRINGS, NOVEMBER 12–14, 1956

STATEMENT ON THE FUTURE NEED FOR PHYSICIANS BY THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The changing nature of our industrial civilization, the increasing population, and the expanding knowledge revealed by research have and will continue to have a profound effect on our educational programs. It is a responsibility of the universities and of the professions

to recognize and meet the needs of society. There is no area in which this obligation is greater than in the field of the health sciences.

Within the next decade, the health care of the American people, based on greater knowledge through research, will require increasing numbers of all types of personnel, including physicians. Further, many more young men and women will be seeking higher education and training in one of the health professions.

In the 10-year period (1945–46 to 1955–56) since the end of World War II the number of medical schools has increased from 77 to 82, the number of entering freshmen from 6,060 to 7,686, and the number of graduates from 5,655 to 6,485. Two new medical schools admitted a freshman class for the first time in the fall of 1956. At least one other school is in process of formation and will admit its first class in 1959.

Although the Association of American Medical Colleges is proud of this record of the medical schools in responding to the needs of the postwar world, it also believes that more remains to be done. Medical education should be expanded further without impairment in the high quality which has been carefully built up in the United States since 1910. It is possible that some existing schools can, with new facilities and larger facilities, accept additional students, but the need will not be met completely in this manner. The larger contribution in number of students will come, as it has in the past, by the establishment of new schools.

On the other hand many schools have already expanded their enrollment without increase or improvement of physical plant. The 84th Congress authorized construction of research facilities, but as was pointed out by the President, this met only a part of the need to maintain the present quality of teaching for the present number of students.

The Association of American Medical Colleges urges its member institutions to survey their potentialities and capacities in the light of the future need for health personnel, and urges universities in large urban centers now without a medical school to give serious consideration to the establishment of one.

The latent period between the determination to form a medical school and service of the graduates to the people is 8 to 14 years; 2 to 4 years to plan the program, construct the buildings, and secure a faculty; 4 years for medical education and 2 to 6 years for hospital training as an intern and resident. Hence, if we are to meet the problem, it should be borne in mind that plans made in 1956 are not for next year or the year after, but for the needs of the Nation in 1964 to 1970.

A program of expansion will require large sums of money, both for capital expenditures and for operating expense. The Association of American Medical Colleges is dedicated to the preservation of joint and coordinated support of medical education from private and Government sources and believes the American people are willing and able to back ventures which will mean better health and a happier life.

16, 17. Medical Education in the United States and Canada. Journal of the American Medical Association 161: 1663–1664, August 25, 1956; and Open Doors, a report on five surveys. Institute of International Education. June 1956. Table VI, page 43. Data reproduced below.

United States students by country of assignment, 1954–55

Country of assignment	Total	Medicine	Country of assignment	Total	Medicine
Total	9,457	1,730	Europe—Continued		
			Saar	8	
Far East	642	4	Spain	165	43
			Sweden	55	1
Burma	9		Switzerland	759	490
Ceylon	3		United Kingdom	1,009	58
Hong Kong	5	1	Vatican City State	417	
India	10	1			
Japan	112	1	Latin America	1,546	27
Philippine Islands	498	1			
Singapore	3		Caribbean, total	61	20
Taiwan	1		Cuba	36	11
Thailand	1		Dominican Republic	13	9
			Trinidad	2	
Near and Middle East	141	6	Mexico	1,395	4
Israel	81		South America, total	100	3
Jordan	3				
Lebanon	54	6	Brazil	4	
Pakistan	2		Chile	8	3
Turkey	1		Colombia	2	
			Paraguay	1	
Europe	5,571	1,345	Peru	85	
Austria	158	16	Canada	1,441	332
Belgium	134	103	Africa	31	3
Denmark	54	2			
Finland	31		Egypt	18	
France	967	30	Nigeria	1	
Germany	827	78	Uganda	3	1
Greece	52	21	Union of South Africa	9	2
Iceland	1				
Ireland	70	35	Oceania	85	13
Italy	621	343			
Netherlands	200	125	Australia	66	13
Norway	42		New Zealand	19	
Portugal	1				

18. Medical Education in the United States and Canada. Journal of the American Medical Association 161: 1664, August 25, 1956; 115: 701, August 31, 1940. See also questions 16–17.

19. Wiggins, Walter S., M. D., associate secretary, Council on Medical Education and Hospitals, American Medical Association, at the Workshop Conference of the Institute of International Education, December 6, 1956.

20. Association of American Medical Colleges. Admission Requirements of American Medical Colleges, 1957. Chicago, The Association, 1956., p. 14. See also question 23.

The following information was furnished in answer to a question submitted to the Council on Medical Education and Hospitals of the

American Medical Association, inquiring how information on the number of applicants is secured.

The Association of American Medical Colleges receives a list from each medical school each year of the names of the applicants. This list includes only completed applications and does not include casual inquiries of medical schools. A separate IBM punch card is made for each application. The machines collate all of the cards for each applicant. A summary card is then made for each applicant showing the schools to which he applied, where accepted, as well as other data. In fact, the summary card for each accepted applicant has added to it each year the class standing of the student or, if he leaves school, the reason for his departure.

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21. Medical Education in the United States and Canada. Journal of the American Medical Association 161: 1640–1641, August 25, 1956. See also question 23.

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22. See question 23.

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23. Stalnaker, John M. Study of Applicants. Journal of Medical Education, annual numbers; and Medical Education in the United States and Canada. Journal of the American Medical Association, annual numbers. Data reproduced below compiled by Division of Public Health Methods, Public Health Service.

Number of applicants and freshmen enrolled in United States medical schools

Academic year	Applicants	Freshmen	Applicants per freshman
1934-35	12,779	6,356	2.0
1936-37	12,192	5,910	2.1
1939-40	11,800	5,794	2.0
1942-43	14,043	6,425	2.2
1947-48	18,829	6,487	2.9
1948-49	24,242	6,688	3.6
1949-50	24,434	7,042	3.5
1950-51	22,279	7,177	3.1
1951-52	19,920	7,436	2.7
1952-53	16,763	7,425	2.3
1953-54	14,678	7,449	2.0
1954-55	14,538	7,576	1.9
1955-56	14,937	7,742	1.9

24. Association of American Medical Colleges. Statement on the Future Need for Physicians. Reproduced under questions 14–15.

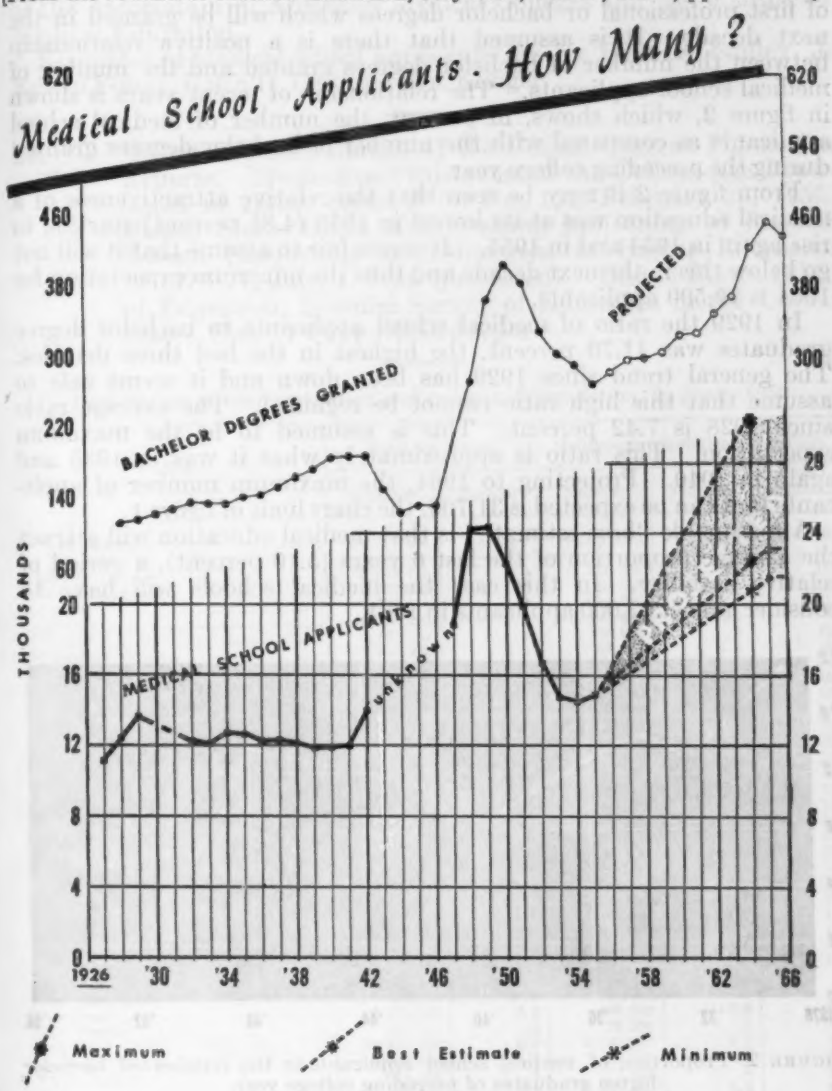
25–27. Reply to staff outline received from American Medical Association. Data reproduced below.

Trends in the size of graduating college classes and number of medical school applicants 1926–55

Year	Bachelors degrees [1] granted in year ending June		Medical school applicants in year beginning September (actual)	Percent college graduates applying to medical school	Projected number of medical school applicants to 1965 [2]		
	Actual	Projected			Maximum [3]	Intermediate [3]	Minimum [4]
1926			10,006				
1927			11,287				
1928	111,161		12,420	11.17			
1929	116,685		13,655	11.70			
1930	122,484						
1931	130,040						
1932	138,063		12,280	8.89			
1933	137,954		12,128	8.79			
1934	137,845		12,779	9.27			
1935	140,903		12,740	9.04			
1936	143,961		12,192	8.47			
1937	154,452		12,207	7.90			
1938	164,943		12,131	7.35			
1939	175,722		11,800	6.72			
1940	186,500		11,854	6.36			
1941	185,924		11,940	6.42			
1942	185,346		14,043	7.58			
1943	151,692						
1944	125,875						
1945	131,025						
1946	136,174						
1947			18,829				
1948	272,144		24,242	8.91			
1949	366,634		24,434	6.66			
1950	433,734		22,279	5.14			
1951	384,352		19,920	5.18			
1952	331,924		16,763	5.05			
1953	304,857		14,678	4.81			
1954	292,880		14,538	4.96			
1955	272,000		14,937	5.49			
1956		283,000			20,999	14,433	13,612
1957		288,000			21,370	14,688	13,853
1958		292,000			21,666	14,892	14,045
1959		307,000			22,779	15,657	14,767
1960		326,000			24,189	16,626	15,681
1961		329,000			24,412	16,779	15,825
1962		350,000			25,970	17,850	16,835
1963		378,000			28,048	19,278	18,182
1964		427,000			31,683	21,777	20,539
1965		454,000			33,687	23,154	21,837

[1] Ed. note: Bachelors and first professional earned degrees conferred in institutions of higher education in the United States. Includes M. D., D. D. S., D. V. M., and first-level degrees in other fields of study.
[2] Based on average of 7.42 percent of college graduates (1927–55).
[3] Based on average of 5.10 percent of college graduates (1950–55).
[4] Based on lowest recorded percent (4.81) of college graduates.

[From the Journal of Medical Education, July 1956, vol. 31, No. 7, pp. 493–494]



An increasing number of persons will seek admission to American medical colleges during the next decade. The predictable increase of the age-eligible population assures an increase even though other factors may decrease the relative attractiveness of a medical education. The extent of the future increases can be predicted only within a progressively widening range, as shown in the shaded area of figure 1 above.

The charted prediction is based on present estimates of the number of first professional or bachelor degrees which will be granted in the next decade. It is assumed that there is a positive relationship between the number of bachelor degrees granted and the number of medical school applicants. The relationship of recent years is shown in figure 2, which shows, in percent, the number of medical school applicants as compared with the number of bachelor degrees granted during the preceding college year.

From figure 2 it may be seen that the relative attractiveness of a medical education was at its lowest in 1953 (4.81 percent) starting to rise again in 1954 and in 1955. It seems fair to assume that it will not go below this in the next decade and thus the minimum expectation for 1964 is 20,500 applicants.

In 1929 the ratio of medical school applicants to bachelor degree graduates was 11.70 percent, the highest in the last three decades. The general trend since 1929 has been down and it seems safe to assume that this high ratio cannot be regained. The average ratio since 1928 is 7.42 percent. This is assumed to be the maximum expectation. This ratio is approximately what it was in 1935 and again in 1940. Projecting to 1964, the maximum number of applicants that can be expected is 31,700. the chart limit of figure 1.

A reasonable "best estimate" is that medical education will attract the average proportion of the last 6 years (5.10 percent), a period of relative stability. In this case the medical schools will have to consider almost 22,000 applicants in 1964.

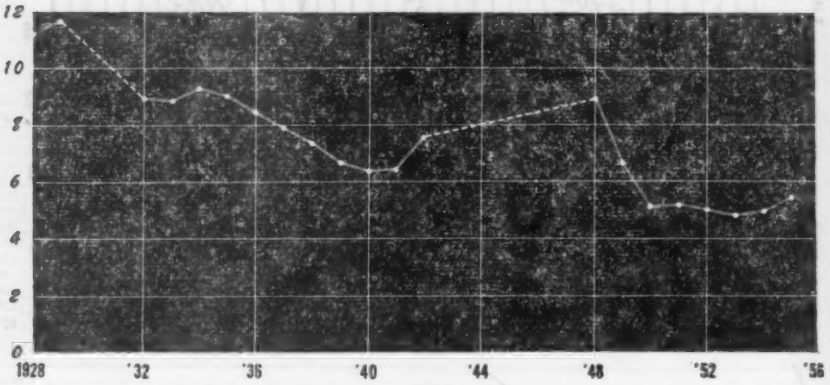


FIGURE 2. Proportion of medical school applicants to the number of bachelor degree graduates of preceding college year.

REFERENCES

Estimates of college graduates are by Toby Oxtoby, Robert Mugge, and Dael Wolfle of the Commission on Human Resources and Advanced Training, Enrollment and Graduation Trends: From Grade School to Ph. D., School and Society, October 11, 1952, vol. 76, No. 173.

Actual figures on college graduates are from Biennial Surveys of Education in the United States, Office of Education, United States Department of Health, Education, and Welfare.

Actual figures on medical school applicants are from the Bulletin of the Association of American Medical Colleges and the Journal of Medical Education.

Estimates of medical school applicants are by Dean F. Smiley, J. Edwin Foster, Helen H. Gee, and Eric Klinger.

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28. United States Bureau of the Census Current Population Reports. Illustrative Projections of the College-Age Population to 1973. Series P–25 No. 132, February 20, 1956. United States Office of Education, Projections of Regular Session Enrollment in Institutions of Higher Education to 1970–71, June 1, 1956 (processed). United States Office of Education, Biennial Survey of Education in the United States, chapter 4 of published reports.

Distribution of total population and college-age population, by State, 1950

State	Total population		College-age population		Percent college-age of total population
	Number	Percent	Number	Percent	
Total	150,697,361	100.0	16,070,000	100.0	10.7
Alabama	3,061,743	2.0	361,000	2.3	11.8
Arizona	749,587	.5	80,000	.5	10.7
Arkansas	1,909,511	1.3	210,000	1.3	11.0
California	10,586,223	7.0	996,000	6.2	9.4
Colorado	1,325,089	.9	138,000	.9	10.4
Connecticut	2,007,280	1.3	203,000	1.3	10.1
Delaware	318,085	.2	33,000	.2	10.4
District of Columbia	802,178	.5	87,000	.5	10.8
Florida	2,771,305	1.8	287,000	1.8	10.4
Georgia	3,444,578	2.3	394,000	2.5	11.4
Idaho	588,637	.4	63,000	.4	10.7
Illinois	8,712,176	5.8	885,000	5.5	10.2
Indiana	3,934,224	2.6	422,000	2.6	10.7
Iowa	2,621,073	1.7	273,000	1.7	10.4
Kansas	1,905,299	1.3	200,000	1.2	10.5
Kentucky	2,944,806	2.0	321,000	2.0	10.9
Louisiana	2,683,516	1.8	306,000	1.9	11.4
Maine	913,774	.6	99,000	.6	10.8
Maryland	2,343,001	1.6	244,000	1.5	10.4
Massachusetts	4,690,514	3.1	483,000	3.0	10.3
Michigan	6,371,766	4.2	686,000	4.3	10.8
Minnesota	2,982,483	2.0	308,000	1.9	10.3
Mississippi	2,178,914	1.4	250,000	1.6	11.5
Missouri	3,954,653	2.6	407,000	2.5	10.3
Montana	591,024	.4	62,000	.4	10.5
Nebraska	1,325,510	.9	144,000	.9	10.9
Nevada	160,083	.1	15,000	.1	9.4
New Hampshire	533,242	.4	53,000	.3	9.9
New Jersey	4,835,329	3.2	488,000	3.0	10.1
New Mexico	681,187	.5	78,000	.5	11.5
New York	14,830,192	9.8	1,530,000	9.5	10.3
North Carolina	4,061,929	2.7	490,000	3.1	12.1
North Dakota	619,636	.4	72,000	.4	11.6
Ohio	7,946,627	5.3	849,000	5.3	10.7
Oklahoma	2,233,351	1.5	246,000	1.5	11.0
Oregon	1,521,341	1.0	149,000	.9	9.8
Pennsylvania	10,498,012	7.0	1,161,000	7.2	11.1
Rhode Island	791,896	.5	81,000	.5	10.2
South Carolina	2,117,027	1.4	250,000	1.6	11.8
South Dakota	652,740	.4	73,000	.5	11.2
Tennessee	3,291,718	2.2	384,000	2.4	11.7
Texas	7,711,194	5.1	870,000	5.4	11.3
Utah	688,862	.5	81,000	.5	11.8
Vermont	377,747	.3	40,000	.2	10.6
Virginia	3,318,680	2.2	373,000	2.3	11.2
Washington	2,378,963	1.6	220,000	1.4	9.2
West Virginia	2,005,552	1.3	241,000	1.5	12.0
Wisconsin	3,434,575	2.3	354,000	2.2	10.3
Wyoming	290,529	.2	30,000	.2	10.3

Source: Vol. II, part 1, 1950 Population. Part 1, U. S. Summary, table 6, p. 1–8; percent, p. 1–11.

Projections of the population 18 to 24 years, by regions, divisions, and States: July 1, 1958 to 1973, with comparative figures for Apr. 1, 1950

[In thousands. Figures relate to the civilian population plus members of the Armed Forces who resided in the area at the time of their entry into service]

Region, division, and State	Apr. 1, 1950	Migration like 1940–50				Migration like 1930–50				No net migration			
		July 1, 1958	July 1, 1963	July 1, 1968	July 1, 1973	July 1, 1958	July 1, 1963	July 1, 1968	July 1, 1973	July 1, 1958	July 1, 1963	July 1, 1968	July 1, 1973
United States	16,070	15,481	18,055	22,790	26,360	15,481	18,055	22,790	26,360	15,240	17,689	22,237	25,682
Regions:													
Northeastern	4,138	3,622	4,271	5,393	6,087	3,600	4,235	5,344	6,046	3,499	4,079	5,135	5,822
North Central	4,673	4,444	5,146	6,414	7,621	4,384	5,052	6,289	7,538	4,346	5,033	6,338	7,500
South	5,347	5,275	5,833	7,114	7,919	5,380	6,008	7,370	8,125	5,568	6,319	7,821	8,783
West	1,912	2,140	2,805	3,869	4,733	2,117	2,760	3,787	4,651	1,836	2,258	2,943	3,577
Northeast:													
New England	959	854	1,016	1,277	1,423	845	1,001	1,255	1,419	838	987	1,239	1,391
Middle Atlantic	3,179	2,768	3,255	4,116	4,664	2,755	3,234	4,089	4,627	2,661	3,092	3,896	4,431
North Central:													
East North Central	3,196	3,076	3,661	4,646	5,583	3,019	3,564	4,506	5,478	2,908	3,410	4,331	5,172
West North Central	1,477	1,368	1,485	1,768	2,038	1,365	1,488	1,783	2,060	1,438	1,623	2,007	2,328
South:													
South Atlantic	2,399	2,420	2,766	3,443	3,891	2,449	2,810	3,500	3,990	2,442	2,791	3,458	3,924
East South Central	1,316	1,276	1,311	1,504	1,561	1,337	1,411	1,651	1,703	1,457	1,610	1,949	2,105
West South Central	1,632	1,579	1,756	2,167	2,467	1,594	1,787	2,219	2,532	1,669	1,918	2,414	2,754
West:													
Mountain	547	593	699	892	1,119	589	695	880	1,094	582	680	893	1,046
Pacific	1,365	1,547	2,106	2,977	3,614	1,528	2,065	2,907	3,557	1,254	1,578	2,083	2,531
New England:													
Maine	99	94	102	124	133	95	104	127	136	99	110	136	145
New Hampshire	53	50	57	71	79	50	56	70	79	52	58	73	80
Vermont	40	38	41	49	56	38	41	50	54	41	46	58	62
Massachusetts	483	418	493	613	685	413	486	603	687	410	482	600	684
Rhode Island	81	71	85	108	118	70	84	107	119	68	80	103	115
Connecticut	203	183	238	312	352	179	230	298	344	168	211	269	305
Middle Atlantic:													
New York	1,530	1,333	1,596	2,045	2,333	1,339	1,605	2,069	2,364	1,235	1,452	1,862	2,141
New Jersey	488	434	553	743	856	420	528	696	798	400	491	636	721
Pennsylvania	1,161	1,001	1,106	1,328	1,475	996	1,101	1,324	1,465	1,026	1,149	1,398	1,569
East North Central:													
Ohio	849	806	970	1,264	1,522	781	929	1,201	1,460	747	879	1,137	1,365
Indiana	422	416	498	627	748	408	484	609	733	392	460	576	681
Illinois	885	817	971	1,212	1,423	807	956	1,197	1,420	773	913	1,160	1,360
Michigan	686	699	847	1,080	1,343	682	815	1,027	1,302	643	759	957	1,181
Wisconsin	354	338	375	463	547	341	380	472	563	353	399	501	585

West North Central:													
Minnesota	308	297	336	404	475	302	349	429	515	306	358	447	521
Iowa	273	257	276	323	364	259	280	331	375	272	305	372	423
Missouri	407	381	419	495	561	381	423	506	580	386	433	521	608
North Dakota	72	63	62	68	75	63	62	68	74	75	83	101	115
South Dakota	73	66	67	80	95	64	64	75	84	73	81	103	119
Nebraska	144	124	126	153	173	122	122	147	166	136	147	189	219
Kansas	200	180	199	245	295	174	188	227	266	190	216	274	323
South Atlantic:													
Delaware	33	34	42	53	67	33	41	53	67	30	36	45	57
Maryland	244	252	328	441	513	248	319	422	488	221	274	350	408
District of Columbia [1]	87	64	79	106	133	64	79	106	133	55	66	97	137
Virginia	373	374	442	554	628	369	434	543	607	366	425	525	597
West Virginia	241	232	232	261	265	242	247	283	278	261	279	333	344
North Carolina	490	488	519	608	653	502	541	642	677	525	579	701	764
South Carolina	250	260	280	328	350	268	295	351	365	291	331	404	447
Georgia	394	392	420	506	548	401	437	534	563	426	480	603	674
Florida	287	324	424	586	734	322	417	566	712	267	321	400	496
East South Central:													
Kentucky	321	308	306	340	351	329	341	390	398	367	404	485	520
Tennessee	384	382	421	503	531	385	427	515	538	392	438	529	569
Alabama	361	350	358	410	418	364	379	441	445	402	443	538	572
Mississippi	250	236	226	251	261	259	264	305	322	296	325	397	444
West South Central:													
Arkansas	210	195	187	203	189	211	213	239	221	247	274	329	329
Louisiana	306	312	357	440	504	316	366	458	527	320	372	469	550
Oklahoma	246	214	202	212	207	223	218	235	221	260	286	338	350
Texas	870	858	1,010	1,312	1,567	844	990	1,287	1,563	842	986	1,278	1,525
Mountain:													
Montana	62	61	69	83	102	61	69	84	102	63	74	93	109
Idaho	63	67	75	88	103	69	80	98	114	72	83	101	112
Wyoming	30	30	35	45	54	32	38	47	56	31	37	47	55
Colorado	138	139	160	205	258	137	159	205	251	136	157	204	249
New Mexico	78	87	101	131	167	89	106	140	171	89	104	136	167
Arizona	80	104	132	178	236	100	122	155	211	91	107	130	170
Utah	81	87	103	130	157	83	97	120	147	85	100	126	154
Nevada [1]	15	18	24	32	42	18	24	31	42	15	18	23	30
Pacific:													
Washington [1]	220	242	317	438	495	241	315	431	503	218	271	353	402
Oregon [1]	149	168	215	290	340	167	213	287	348	147	176	220	255
California [1]	996	1,137	1,574	2,249	2,779	1,120	1,537	2,189	2,706	889	1,131	1,510	1,874

[1] Projected migration rates for these areas do not follow the uniform assumption used for the other States.

Source: Current Population Reports, Series P-25, No. 132, Feb. 20, 1956.

Projected changes in population 18 to 24 years old: 1955–73

July 1, of each year	Number in age group (thousands)	Percent of increase since preceding date	Cumulative percent of increase since preceding date
1955	15,106		
1956	15,130	0.2	0.2
1957	15,271	.9	1.1
1958	15,481	1.4	2.5
1959	15,819	2.2	4.7
1960	16,237	2.6	7.5
1961	16,988	4.6	12.5
1962	17,573	3.4	16.3
1963	18,055	2.7	19.5
1964	18,522	2.6	22.6
1965	20,043	8.2	32.7
1966	21,190	5.7	40.3
1967	22,181	4.7	46.8
1968	22,790	2.7	50.9
1969	23,699	4.0	56.9
1970	24,694	4.2	63.5
1971	25,770	4.4	70.6
1972	25,880	0.4	71.3
1973	26,360	1.9	74.5

Source: Current Population Reports, Series P-25, No. 132, Feb. 20, 1956.

Percentage of all college graduates who entered practice of medicine, 1800–1955

1801–20	28	1916–20	7
1821–40	35	1921–25	5
1841–60	28	1926–30	4
1861–80	28	1931–35	4
1881–1900	21	1936–40	3
1901–05	19	1941–45	3
1906–10	14	1946–50	2
1911–15	10	1951–55	2

Data for 1801–1900 from B. B. Burritt, U. S. Bureau of Education Bull. 19, 1912, and for 1901–55 from Commission on Human Resources and Advanced Training.

2 projections of numbers of college graduates in future years

	A	B		A	B
1957	321,000	314,000	1964	387,000	440,000
1958	324,000	325,000	1965	442,000	513,000
1959	325,000	333,000	1966	418,000	494,000
1960	340,000	355,000	1967	415,000	501,000
1961	346,000	370,000	1968	420,000	517,000
1962	346,000	377,000	1969	580,000	726,000
1963	360,000	403,000	1970	540,000	687,000

Source: Data from U. S. Office of Education and the Fund for the Advancement of Education.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, OFFICE OF EDUCATION, RESEARCH AND STATISTICAL SERVICES BRANCH, STATISTICAL SERVICES SECTION

Projections of 1st-time enrollment and total fall enrollment in institutions of higher education in continental United States: Fall 1956–70

[Projections as of March 1956]

Fall of	1st-time enrollment			Total fall enrollment		
	Total	Men	Women	Total	Men	Women
1955 [1]	682, 639	426, 787	255, 852	2, 695, 340	1, 769, 913	925, 427
1956	706, 000	441, 000	265, 000	2, 907, 000	1, 916, 000	991, 000
1957	727, 000	453, 000	274, 000	3, 104, 000	2, 052, 000	1, 052, 000
1958	741, 000	461, 000	280, 000	3, 259, 000	2, 156, 000	1, 103, 000
1959	771, 000	479, 000	292, 000	3, 399, 000	2, 245, 000	1, 154, 000
1960	828, 000	514, 000	314, 000	3, 567, 000	2, 351, 000	1, 216, 000
1961	910, 000	564, 000	346, 000	3, 790, 000	2, 492, 000	1, 298, 000
1962	924, 000	572, 000	352, 000	4, 004, 000	2, 628, 000	1, 376, 000
1963	924, 000	571, 000	353, 000	4, 189, 000	2, 747, 000	1, 442, 000
1964	969, 000	600, 000	369, 000	4, 372, 000	2, 865, 000	1, 507, 000
1965	1, 163, 000	720, 000	443, 000	4, 677, 000	3, 059, 000	1, 618, 000
1966	1, 221, 000	756, 000	465, 000	5, 006, 000	3, 271, 000	1, 735, 000
1967	1, 234, 000	763, 000	471, 000	5, 331, 000	3, 482, 000	1, 849, 000
1968	1, 237, 000	764, 000	473, 000	5, 617, 000	3, 669, 000	1, 948, 000
1969	1, 267, 000	781, 000	486, 000	5, 796, 000	3, 784, 000	2, 012, 000
1970	1, 372, 000	804, 000	568, 000	6, 006, 000	3, 877, 000	2, 129, 000

[1] Actual.

NOTE.—Projections of enrollments are based on projections of (*a*) population, and (*b*) entrance rates into college. Acknowledgment is made to Howard G. Brunsman, Chief, Population and Housing Division, Bureau of the Census, for population estimates. The projections from 1955–56 through 1965–66 utilize population estimates in a letter from Mr. Brunsman dated December 8, 1953, those from 1966–67 through 1970–71 utilize population estimates in a letter dated May 16, 1956.

Projections of bachelor's and 1st professional earned degrees conferred in institutions of higher education in continental United States: 1955–56 to 1970–71

[Projections as of March 1956]

Academic year	Total	Men	Women	Academic year	Total	Men	Women
1954–55 [1]	285, 138	182, 463	102, 675	1963–64	515, 000	342, 000	173, 000
1955–56	325, 000	211, 000	114, 000	1964–65	567, 000	376, 000	191, 000
1956–57	347, 000	225, 000	122, 000	1965–66	576, 000	382, 000	194, 000
1957–58	392, 000	259, 000	133, 000	1966–67	576, 000	381, 000	195, 000
1958–59	421, 000	282, 000	139, 000	1967–68	605, 000	401, 000	204, 000
1959–60	437, 000	292, 000	145, 000	1968–69	728, 000	482, 000	246, 000
1960–61	450, 000	300, 000	150, 000	1969–70	766, 000	507, 000	259, 000
1961–62	459, 000	306, 000	153, 000	1970–71	775, 000	513, 000	262, 000
1962–63	478, 000	318, 000	160, 000				

[1] Actual.

NOTE.—Projections of degrees are based on projections of (*a*) population, (*b*) entrance rates into college, and (*c*) graduation rates. Acknowledgment is made to Howard G. Brunsman, Chief, Population and Housing Division, Bureau of the Census, for population estimates. The projections from 1955–56 through 1965–66 utilize population estimates in a letter from Mr. Brunsman dated Dec. 8, 1953; those from 1966–67 through 1970–71 utilize population estimates in a letter dated May 16, 1956.

[School and Society, October 11, 1952, vol. 76, No. 173, pp. 225–231]

Enrollment and Graduation Trends: From Grade School to Ph. D.

(By Toby Oxtoby, Robert Mugge, and Dael Wolfle, Commission on Human Resources and Advanced Training)

It would be useful to know in advance how many children will be in elementary schools in 1955, how many high-school pupils will graduate in 1960, or how many college degrees will be conferred in 1970. None of these figures can be predicted exactly, but careful projections of existing trends provide useful substitutes. Besides the obvious problems of finding enough qualified teachers and building enough schools to satisfy the upsurging demand for education, there are important questions for society to answer concerning the use of its manpower resources: Are we training more high-school and college graduates than can be employed in the fields for which they are trained, or are we likely to have fewer well-trained people than our increasingly complex industrial and social organization will need? What educational level of manpower for the armed services and for civilian industry can be anticipated in the future? What, if any, need is likely to develop for further Federal subsidies for schools and colleges? Answers to these and similar questions will be made easier if reasonable projections of enrollment and graduation trends are available.

In order to supply these projections, we have prepared tables which bring together in one place a collection of past figures and future projections of enrollment and graduation trends for the entire educational range of elementary school to graduate school. Each table is accompanied by an explanation which indicates the source of the data used and explains the methods by which the projections were made.

In projecting future trends it is necessary to decide what to try to predict. The actual number of college graduates, for example, is influenced by many factors. The 1952 graduating class was abnormally large because of the presence of some veterans. Nevertheless, it was considerably smaller than the class of 1951, for most of the veteran students had completed their college work before 1952. In the 1955 class there will be only an insignificant number of veterans of World War II, but the size of that class may be large or small depending upon the size of the country's Armed Forces, policies concerning student deferment, provisions for educational benefits for veterans, and other factors. One can try to analyze the operation of these and similar factors and attempt to predict the actual graduating classes of future years, but the span of time over which such predictions can be made is quite short. As an alternative possibility, one can neglect the temporary conditions and project on the basis of longtime trends. That is the kind of projection we are offering. Such projections can be extended further into the future, and even though for a particular year they may be inaccurate, for a series of years they show trends which provide useful baselines for assessing the effects of changing conditions.

The projections are, therefore, to be understood for what they are: projections of enrollment and graduation trends until 1958 for elementary pupils and as far ahead as 1973 for college students. Depres-

sions and wars can cause enrollments to drop, while NYA's and GI bills can make them rise. All we have attempted to do is to project the "normal" level from which such drops and rises may take off.

It is also necessary to decide which past data will be employed in plotting the trends upon which future projections will be made. The two most useful sources of past educational records are reports of the Office of Education, FSA, and reports of the United States census. Unfortunately, some of the statistics for past years are pretty fragmentary; worse, some are quite inconsistent. For example, the Bureau of the Census counted 18,142,000 children enrolled in elementary schools in 1939; the Office of Education gave an enrollment of 20,449,000 for the same year. It is easy to think of several types of error which creep into the collection of such large figures, but after that is done it is still necessary to select the figures which appear to be better suited for a particular purpose. In some cases we used Census data; in others, Office of Education data; and sometimes data from the two sources were combined. Our choice in each instance depended upon which seemed to give the most consistent record.

College graduates.—Table V gives figures on college graduation rates. The number of college graduates expressed as a percentage of the 22-year-old group rose very regularly from 2.6 percent in 1920 to 8.1 percent in 1940. If the trend continues to increase by three-tenths of 1 percent a year until 1973, 18 percent of the age group will then be completing college. The actual numbers of bachelor's and first professional degrees conferred in 1949–50 and the next several years are substantially above the figures given in column 3. For example, there were 433,734 in 1949–50. The estimates given in table V exclude the wave of veterans earning degrees during the years following World War II. A diminishing number of veteran students will gradually bring the actual numbers of degrees down toward the projected figures, so that by 1955 there should be only a slight discrepancy between projected and actual figures for bachelor's degrees.

"College graduates," in table V, is a conglomerate group which includes first professional as well as academic baccalaureate degrees. It would have been desirable to separate the two types, but adequate data were not available to permit that separation. Consequently, A. B. and B. S. degrees were combined with first professional degrees in dentistry, engineering, law, medicine, theology, etc. Since some of the students who earn these degrees have previously earned academic bachelor's degrees, the total number of degrees in table V is a little greater than the number of different persons receiving those degrees.

TABLE V.—*College graduates in the United States projected to 1973*

School year [1]	Population, age 22 [2]	1st degree [3]	Percent of population, age 22 [4]	Master's degrees [5]	Percent bachelors [6 7]	Doctor's degrees [8]	Percent bachelors [6 9]
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1919–20	1,887,000	48,500	2.6	4,100	9.7	600	1.40
1929–30	2,203,000	122,500	5.6	15,000	12.8	2,290	2.09
1939–40	2,292,000	186,500	8.1	26,700	15.2	3,290	1.99
1949–50	2,399,000	266,000	11.1	44,500	16.4	5,350	2.03
1950–51	2,324,000	265,000	11.4	44,200	16.6	5,390	2.04
1951–52	2,365,000	277,000	11.7	44,700	16.9	5,590	2.06
1952–53	2,271,000	273,000	12.0	47,300	17.1	5,660	2.08
1953–54	2,218,000	273,000	12.3	47,200	17.3	5,630	2.09
1954–55	2,103,000	265,000	12.6	47,800	17.5	5,590	2.11
1955–56	2,191,000	283,000	12.9	47,000	17.7	5,940	2.12
1956–57	2,180,000	288,000	13.2	50,800	18.0	6,000	2.14
1957–58	2,166,000	292,000	13.5	52,400	18.2	6,070	2.15
1958–59	2,226,000	307,000	13.8	53,700	18.4	6,210	2.17
1959–60	2,309,000	326,000	14.1	57,200	18.6	6,640	2.18
1960–61	2,287,000	329,000	14.4	61,300	18.8	6,790	2.20
1961–62	2,379,000	350,000	14.7	62,800	19.1	7,090	2.21
1962–63	2,519,000	378,000	15.0	67,600	19.3	7,640	2.23
1963–64	2,794,000	427,000	15.3	73,700	19.5	8,430	2.24
1964–65	2,909,000	454,000	15.6	84,100	19.7	8,850	2.26
1965–66	2,762,000	439,000	15.9	90,800	20.0	8,960	2.27
1966–67	2,695,000	437,000	16.2	88,700	20.2	9,330	2.29
1967–68	3,224,000	532,000	16.5	89,100	20.4	11,030	2.30
1968–69	3,618,000	608,000	16.8	109,600	20.6	12,320	2.32
1969–70	3,455,000	591,000	17.1	126,500	20.8	12,000	2.33
1970–71	3,469,000	604,000	17.4	124,700	21.1	12,230	2.35
1971–72	3,450,000	611,000	17.7	128,700	21.3	13,490	2.36
1972–73	3,647,000	656,000	18.0	131,400	21.5	15,040	2.38

[1] Period from July 1 to June 30 of the following year.

[2] Approximate number of 22-year-olds living at the end of the school year. Figures for 1920 through 1940 were taken from census reports; those for 1950 through 1973 were projected from corrected birth data.

[3] Number of persons graduated each year with a B. A., B. S., etc., or first professional (B. D., LL. B., M. D., D. V. M., etc.) degree. Figures for 1920, 1930, and 1940 are as reported by the Office of Education. Figures for 1950 through 1960 are projections obtained by applying the percentages in col. 4 to the populations in col. 2. Figures for 1950 and 1951 do not agree with the actual graduation totals for those years, but are approximations of the sizes of classes which would normally have graduated had there been no World War II and no GI bill. Later projections also eliminate World War II veterans and take no account of future inductions for military service.

[4] Percentage which the number of graduates is of the total population age 22. Percentages for 1920 through 1940 were derived from the figures in cols. 2 and 3; those for 1950 through 1973 are projections of the trends shown in the earlier years. These percentages, like the corresponding numbers in col. 3, are presented as the normal expectation rather than as the actual percentages; actual percentages for 1950 and several years thereafter would be considerably higher because of the many veterans graduating from college.

[5] Numbers of master's and second professional degrees conferred in the indicated years. Figures for 1920 through 1940 are from Office of Education reports; figures for 1950 and later were computed by applying the percentages in col. 6 to the numbers of bachelor's degrees given in col. 3. These, as with the projections of bachelor's degrees, are "normal" expectations, excluding veterans.

[6] See text for explanation of how these percentages were computed.

[7] Percentage which the number of master's and second professional degrees is of the number of bachelor's and first professional degrees conferred in the preceding year. Figures for 1920 through 1940 were obtained directly from available data; those for 1950 and later years were obtained by extrapolating the regression line based upon the complete series of records available from 1900 to 1950.

[8] Number of academic doctor's degrees (Ph. D., D. S. T., Sc. D., and Ed. D.) conferred in each year. Figures for 1920 through 1940 were taken from Office of Education reports; figures for 1950 through 1973 were projected by applying the percentages shown in col. 8 to the numbers of bachelor's degrees given in col. 3. These figures also are "normal" projections, excluding veteran graduates in 1950 and the following several years.

[9] Percentage which the number of doctor's degrees is of the average of bachelor's degrees given in the same year and bachelor's degrees given 4 years earlier. Figures for 1920 through 1940 were obtained from available data; figures for 1950 and later years were obtained by extrapolating along the line of regression based on data for the period 1900 to 1950.

29. Gee, Helen H. The Study of Applicants, 1955–56. Journal of Medical Education 31: 863–869, December 1956. Data reproduced under questions 31, 32.

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30. Medical Education in the United States and Canada. Journal of the American Medical Association 161:1657, August 25, 1956. See also questions 35–36.

31, 32. Gee, Helen H. The Study of Applicants, 1955–56. Journal of Medical Education 31:863–869, December 1956. State ratios presented below compiled by Division of Public Health Methods, Public Health Service.

Percent distribution of applicants to medical school and total population, 1955

State	Applicants		Population	
	Total	Percent	Total	Percent
United States, total	14,240	100.0	164,280,000	100.0
Selected States	7,054	49.5	72,625,000	44.2
New York	2,225	15.6	16,124,000	9.8
Pennsylvania	1,171	8.2	11,159,000	6.8
California	968	6.8	13,032,000	7.9
Illinois	748	5.3	9,261,000	5.7
Ohio	733	5.1	8,966,000	5.5
Texas	618	4.3	8,563,000	5.2
New Jersey	591	4.2	5,420,000	3.3
All other States	7,186	50.5	91,655,000	55.8

Ratio of applicants to population, by State, 1955–56

State	Total population July 1, 1955	Number of applicants, 1955–56	Number of applicants per 100,000 population
Total	164,280,000	14,240	8.7
Northeast	42,645,000	4,824	11.3
North Central	48,341,000	3,690	7.6
South	50,145,000	4,008	8.0
West	23,149,000	1,718	7.4
Alabama	3,033,000	209	6.9
Arizona	860,000	40	4.1
Arkansas	1,789,000	184	10.3
California	13,032,000	968	7.4
Colorado	1,549,000	151	9.7
Connecticut	2,241,000	198	8.8
Delaware	387,000	18	4.7
District of Columbia	853,000	118	13.8
Florida	3,452,000	312	9.0
Georgia	3,621,000	291	8.0
Idaho	609,000	42	6.9
Illinois	9,361,000	748	8.0
Indiana	4,330,000	345	8.0
Iowa	2,692,000	194	7.2
Kansas	2,060,000	153	7.4
Kentucky	3,005,000	215	7.2
Louisiana	2,927,000	256	8.7
Maine	905,000	41	4.5
Maryland	2,669,000	206	7.7
Massachusetts	5,016,000	446	8.9
Michigan	7,236,000	536	7.4
Minnesota	3,174,000	254	8.0
Mississippi	2,111,000	228	10.8
Missouri	4,128,000	229	5.5
Montana	633,000	39	6.2
Nebraska	1,381,000	148	10.7
Nevada	225,000	7	3.1
New Hampshire	557,000	40	7.2
New Jersey	5,420,000	591	10.9
New Mexico	795,000	27	3.4
New York	16,124,000	2,225	13.8
North Carolina	4,285,000	265	6.2
North Dakota	642,000	46	7.2
Ohio	8,966,000	733	8.2
Oklahoma	2,168,000	202	9.3
Oregon	1,669,000	114	6.8
Pennsylvania	11,159,000	1,171	10.5
Rhode Island	845,000	85	10.1
South Carolina	2,283,000	189	8.3
South Dakota	677,000	61	9.0
Tennessee	3,417,000	268	7.8
Texas	8,563,000	618	7.2
Utah	781,000	102	13.1
Vermont	378,000	27	7.1
Virginia	3,579,000	269	7.5
Washington	2,570,000	207	8.1
West Virginia	2,002,000	160	8.0
Wisconsin	3,694,000	243	6.6
Wyoming	306,000	21	6.9

Source: Gee, Helen H. The Study of Applicants, 1955–56; Journal of Medical Education, 31: 863, December 1956; and U. S. Bureau of the Census. Current Population Reports, Series P–25, No. 129, Jan. 20, 1956.

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33. Stalnaker, John M. The Study of Applicants, 1954–55. Journal of Medical Education 30: 625, November 1955.

34. Medical Education in the United States and Canada. Journal of the American Medical Association 161: 1640–1641, August 25, 1956. Data reproduced below compiled by Division of Public Health Methods, Public Health Service.

Number of medical schools, 1955–56 and 1956–57

State	1955–56			1956–57		
	Total schools	4-year schools	2-year schools	Total schools	4-year schools	2-year schools
Total	83	77	6	85	81	4
Alabama	1	1		1	1	
Arizona	0			0		
Arkansas	1	1		1	1	
California	5	5		5	5	
Colorado	1	1		1	1	
Connecticut	1	1		1	1	
Delaware	0			0		
District of Columbia	3	3		3	3	
Florida	1	1		2	2	
Georgia	2	2		2	2	
Idaho	0			0		
Illinois	5	5		5	5	
Indiana	1	1		1	1	
Iowa	1	1		1	1	
Kansas	1	1		1	1	
Kentucky [1]	1	1		1	1	
Louisiana	2	2		2	2	
Maine	0			0		
Maryland	2	2		2	2	
Massachusetts	3	3		3	3	
Michigan	2	2		2	2	
Minnesota	1	1		1	1	
Mississippi	1		1	1	1	
Missouri	3	2	1	3	3	
Montana	0			0		
Nebraska	2	2		2	2	
Nevada	0			0		
New Hampshire	1		1	1		1
New Jersey	0			1	1	
New Mexico	0			0		
New York	10	10		10	10	
North Carolina	3	3		3	3	
North Dakota	1		1	1		1
Ohio	3	3		3	3	
Oklahoma	1	1		1	1	
Oregon	1	1		1	1	
Pennsylvania	6	6		6	6	
Rhode Island	0			0		
South Carolina	1	1		1	1	
South Dakota	1		1	1		1
Tennessee	3	3		3	3	
Texas	3	3		3	3	
Utah	1	1		1	1	
Vermont	1	1		1	1	
Virginia	2	2		2	2	
Washington	1	1		1	1	
West Virginia [2]	1		1	1		1
Wisconsin	2	2		2	2	
Wyoming	0			0		
Puerto Rico	1	1		1	1	

[1] University of Kentucky medical school scheduled to open in 1959.
[2] West Virginia University medical school expanding to 4-year program, with graduates in 1961.

Source: Medical Education in the United States and Canada. Journal of the American Medical Association, 161: 1640–1643, Aug. 25, 1956.

35, 36. Medical Education in the United States and Canada. Journal of the American Medical Association, 161: 1654–1657, August 25, 1956 (reproduced below). Table by Division of Public Health Methods, Public Health Service also presented.

Training capacity in New York and Vermont, 1955–56

Medical school	Freshmen from home State		Total freshmen	
	Number	Ratio per 100,000 population [1]	Number	Ratio per 100,000 population [1]
New York, total	633	4.0	969	6.0
Albany	48		64	
Buffalo	77		85	
Columbia	51		119	
Cornell	39		84	
New York Medical College	66		128	
New York University	99		131	
State University at New York City	141		151	
State University at Syracuse	75		80	
Rochester	37		71	
Albert Einstein	[2]		56	
Vermont, total	16	4.3	50	13.5
University of Vermont	16		50	

[1] Total population as of July 1, 1955: New York, 16,021,000; Vermont, 370,000.
[2] Not available.

[Journal of American Medical Association, August 25, 1956]

Geographical Source of Entering Students

Information as to the State of permanent residence for entering students was derived from the enrollment data submitted by the medical schools. Table 16 presents the residence of students at the time of their enrollment in the approved medical schools in the United States and Canada.

This table indicates that 40 percent of all first-year students in the United States came from 6 States (New York, Pennsylvania, California, Ohio, Illinois, and Texas). It is interesting to note that the first-year enrollment of all the approved medical schools in these States represented 42 percent of the total enrollment for the Nation and that almost 38 percent of all United States medical schools are located in the same States.

There were fewer than 14 first-year students in the medical schools in the United States from each of 4 States (Nevada, Delaware, New Mexico, and Wyoming), and fewer than 25 students from each of 6 other States (Vermont, Arizona, Idaho, Maine, New Hampshire, and Montana). Of these 10 States, only Vermont and New Hampshire have medical schools. The 57 students from the 4 States supplying the fewest medical students together with the 133 students from the 6 others represented only 2.4 percent of the total first-year class.

In table 17 are listed the States in ascending order according to the number of enrolled first-year medical students per 100,000 population. The 6 States with the largest number of first-year students are well scattered through this list, with half having less than the median number of students per 100,000 population (4.4) and half having the median number or more. With the exception of Vermont, the other 9 States having the smallest number of first-year students enrolled in medical schools in all instances have fewer students than the median, 5 of them having the lowest freshman medical student representation.

Since last year's report, Florida and the District of Columbia have gained 1 or more first-year students per 100,000 population, 2.4 and 1.3, respectively. The gain by Florida is at least partly accounted for by the new University of Miami School of Medicine. These gains are balanced by five other States (New Mexico, Arizona, Idaho, Vermont, and Utah), whose student per population ratio decreased by one or more, leaving the national ratio and the median exactly the same.

There were 11 [1] schools, all State owned, that limited enrollment to students resident in the State in which each school is located. This is two less than showed this restriction last year. It is perhaps pertinent that other residents of these same States, equal in number to 44 percent of the first-year enrollment of these 11 schools, were accepted in medical schools outside their own States. Legislative bodies could well consider the effect that adoption by all medical schools of similarly complete restrictive admission policies would have on the number of their own residents who would be able to acquire a medical education.

The section of table 16 that depicts the State of residence of students in Canadian medical schools is worthy of notice. There are 78 United States students enrolled in the first medical year of the Canadian schools. Since there are only five Canadian students in the first-year class of American schools, the United States in reality is the recipient of a favorable balance that represents an educational opportunity equivalent to another American medical school.

United States first-year medical students in Canada came from 20 different States with New York (29), California (8), and Illinois (7) accounting for 56 percent of such students. All but 2 of the Canadian schools are involved, and McGill has 57 United States students in the first medical year. This is more than the first-year enrollment in 7 of the approved 4-year American schools.

[1] ED. NOTE.—See p. 225 which indicates that, in the fall of 1956, 10 schools restricted admission to residents of the State.

TABLE 16.—*Geographical source of entering students, 1955–56*

School	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1. Medical College of Alabama	81																											
2. University of Arkansas			93																									
3. College of Medical Evangelists		1		76		1			1							1			1		1	1						
4. University of Southern California School of Medicine				60	1							1				1					1						1	
5. Stanford University School of Medicine		2		47	1							1															1	
6. University of California School of Medicine, San Francisco		1		76																								
7. University of California School of Medicine, Los Angeles		2		48																								
8. University of Colorado School of Medicine		3			70																							
9. Yale University School of Medicine				3		16			1					1		1			1	9	1	1		1	1			
10. Georgetown University School of Medicine						5		6	3			1	1						3	6	1				1	1		2
11. George Washington University School of Medicine	1			14		4	1	14	2		1				1			1	8	2		1		1	1			
12. Howard University College of Medicine	4							15	2			2	1				2	1	1	2	1			1				
13. University of Miami School of Medicine									73																			
14. Emory University School of Medicine	3			1				1	23	36							1											
15. Medical College of Georgia										100																		
16. Chicago Medical School				1								3								1								
17. Northwestern University Medical School		2		9	1				1		2	51	4	1	2	2				1	9			3	1			
18. Stritch School of Medicine of Loyola University		1		3								56	1	1						1	1	1	1		1			
19. University of Chicago, The School of Medicine				3	1						1	29	3	1						1	2	2		2	2			
20. University of Illinois College of Medicine				1					1			164																
21. Indiana University School of Medicine												2	148															
22. State University of Iowa College of Medicine												3		112							1	2						
23. University of Kansas School of Medicine				2							1				85									10				
24. University of Louisville School of Medicine												5				88												
25. Louisiana State University School of Medicine																	125						1					
26. Tulane University of Louisiana School of Medicine	9	1	3	1		1			20	3		2	1		1	3	35					2	19	4				

Medicine	9	1	3	1		1			20	3		2	1		1	3	35							2	19	4					
27. Johns Hopkins University School of Medicine	1	1		6		4		1	2		1	1	1	1	1				8	5	1			1				1			
28. University of Maryland School of Medicine								4	2	1			1						64	4											
29. Boston University School of Medicine				1		4		1					1					1		44											
30. Harvard Medical School	2		2	3	1	5	1	2	2			4	1	3		1		1		15	2	1		1						1	
31. Tufts University School of Medicine						12												8		60										5	
32. University of Michigan Medical School				1					1			3	2							1	178										
33. Wayne State University College of Medicine																					76										
34. University of Minnesota Medical School												1		1				1				118									
35. University of Mississippi School of Medicine																							80								
36. University of Missouri School of Medicine																								45							
37. St. Louis University School of Medicine	1		1	9	1	1		1		1		8	1			1	1		1	1	5	10		26	3						
38. Washington University School of Medicine	1	1		8	2				2		1	7	2	3						2		1		19	1	1					
39. Creighton University School of Medicine				11	3						2	3		7	1						1	4		3		15					
40. University of Nebraska College of Medicine				1										3												81					
41. Dartmouth Medical School												2								2	1				1	1			3		
42. Albany Medical College						2			1			1								2	1										
43. University of Buffalo School of Medicine				1		1						1								1											
44. Columbia University College of Physicians and Surgeons	1			1		5		3		1			1			3			1	6	1		1						1	
45. Cornell University Medical College				1		4				3		1				1				7	1					1			1		
46. New York Medical College, Flower and Fifth Avenue Hospitals						12			1				1							16									1		
47. New York University College of Medicine				1		3			1											4											
48. State University of New York College of Medicine, New York City																				1											
49. State University of New York College of Medicine, Syracuse																															
50. University of Rochester School of Medicine and Dentistry				3		3						2		1					2	7	1	1			1						
51. University of North Carolina School of Medicine																															
52. Duke University School of Medicine	1			2		2		1	13	2		3	1				1		2												
53. Bowman Gray School of Medicine of Wake Forest College				1				1	4			1				3								1							
54. University of North Dakota School of Medicine				2																1					2						
55. University of Cincinnati College of Medicine				2					1				4			10					1										
56. Western Reserve University School of Medicine		1		2				2	1			3	1			2			1	2	1	1									
57. Ohio State University College of Medicine																															
58. University of Oklahoma School of Medicine				1																											
59. University of Oregon Medical School				2							4											1			2						
60. Hahnemann Medical College and Hospital of Philadelphia	1			2			2		1			1								4											
61. Jefferson Medical College of Philadelphia				1		2			1			1					1		1	2	1	1									
62. Temple University School of Medicine				1			1								1																1
63. University of Pennsylvania School of Medicine				3		2	3		4			2				1		1	2	2											
64. Woman's Medical College of Pennsylvania			1	6		1						3	1					1		4											
65. University of Pittsburgh School of Medicine																				1											
66. Medical College of South Carolina																															

TABLE 16.—*Geographical source of entering students, 1955–56*—Continued

School	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
67. University of South Dakota School of Medical Sciences				2								2		1								1						
68. University of Tennessee College of Medicine	4	2	6	3				1	5	1		1				4				2			7	6		1		
69. Meharry Medical College	5								6	10		3	3						1		3		4					
70. Vanderbilt University School of Medicine	4		2	1					2			1	1			9								1				
71. University of Texas Southwestern Medical School																												
72. University of Texas Medical Branch																												
73. Baylor University College of Medicine	1		1	4	2			1	2		2	2	1			1				2		1		4	1			
74. University of Utah School of Medicine		4									3														1			
75. University of Vermont College of Medicine						8												6		9								7
76. University of Virginia Department of Medicine				1			2			1						1			1									
77. Medical College of Virginia									1								1	1	1									
78. University of Washington School of Medicine				1							4											1			3			
79. West Virginia University School of Medicine																												
80. University of Wisconsin Medical School																												
81. Marquette University School of Medicine				5		1						6	1	1				1	1		4	4			2			
82. University of Puerto Rico School of Medicine																												
Total	120	22	109	434	83	99	10	54	180	159	22	378	188	137	92	133	168	22	100	230	296	155	113	129	24	101	2	23

TABLE 16.—*Geographical source of entering students, 1955–56*—Continued

School	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	United States Territories and possessions	Canada	Foreign	Home State	Out of State	Total
	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
1. Medical College of Alabama																									81	0	81
2. University of Arkansas																									93	0	93
3. College of Medical Evangelists								1					1	1				1		2			3	7	76	23	99
4. University of Southern California School of Medicine			1			1												1						1	60	9	69
5. Stanford University School of Medicine			1					1										2						2	47	11	58
6. University of California School of Medicine, San Francisco																									76	1	77
7. University of California School of Medicine, Los Angeles																									48	2	50
8. University of Colorado School of Medicine		6																			7				70	16	86
9. Yale University School of Medicine	10		23	1		2			4							1	1					1			16	63	79
10. Georgetown University School of Medicine	21		36			4			14	4							4	1						1	6	109	115
11. George Washington University School of Medicine	8		13			3			9	2				1	3			3	1	3		1		3	14	88	102
12. Howard University College of Medicine	3		13	5		2			5		1		2	1			5		1					9	15	64	79
13. University of Miami School of Medicine																									73	0	73
14. Emory University School of Medicine				2			1				2		2											1	36	37	73
15. Medical College of Georgia			1																						100	1	101
16. Chicago Medical School	10		55			1			1								1								3	70	73
17. Northwestern University Medical School	6		9			9	1		1	1				2	1		1	1	3	7	1	1			51	82	133
18. Stritch School of Medicine of Loyola University	3		3			10			2									3							56	32	88
19. University of Chicago, The School of Medicine	3		12			1	1	2	2										2	1		1			29	43	72
20. University of Illinois College of Medicine		1																							164	3	167
21. Indiana University School of Medicine																			1					4	148	7	155
22. State University of Iowa College of Medicine										1														1	112	8	120
23. University of Kansas School of Medicine																								3	85	16	101
24. University of Louisville School of Medicine			4																						88	9	97
25. Louisiana State University School of Medicine																									125	1	126

TABLE 16—*Geographical source of entering students, 1955–56*—Continued

School	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	United States Territories and possessions	Canada	Foreign	Home State	Out of State	Total
	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
26. Tulane University of Louisiana School of Medicine	1		2			1	2	1	1					14								2		2	35	96	131
27. Johns Hopkins University School of Medicine	3		13	2		3	2	1	3		1		1	3			1		2	1	1	1			8	66	74
28. University of Maryland School of Medicine	4		1			2			3	1					1			1	3			4			64	32	74 96
29. Boston University School of Medicine	4		10							4						1						1		1	44	29	73
30. Harvard Medical School	6	1	27	2	1	9	1	1	5				1	4	1		1		1	2		2		5	15	103	118
31. Tufts University School of Medicine	4		13							8						1									60	51	111
32. University of Michigan Medical School	2		2			7								1						3		1		4	178	28	206
33. Wayne State University College of Medicine																									76	0	76
34. University of Minnesota Medical School					4							1								2					118	10	128
35. University of Mississippi School of Medicine																									80	0	80
36. University of Missouri School of Medicine																									45	0	45
37. St. Louis University School of Medicine	4	1	1			25	2	2	3			2		4				5				5		1	26	101	127
38. Washington University School of Medicine	4		6	1		3	3	2	1	1			1	5	1		1	2		2		1		2	19	68	87
39. Creighton University School of Medicine	4		7				1	1	1			3						6			1			2	15	61	76
40. University of Nebraska College of Medicine																								2	81	6	87
41. Dartmouth Medical School	3		7			2			2				1												3	22	25
42. Albany Medical College	3		48			1				1														4	48	16	64
43. University of Buffalo School of Medicine	3		77																					1	77	8	85
44. Columbia University College of Physicians and Surgeons	19		51	1		11	1		4		1		1		1		1		1	1				1	51	68	119
45. Cornell University Medical College	18		39			1			2						1					1	1			1	39	45	84
46. New York Medical College, Flower and Fifth Avenue Hospitals	20		66						3	5					1	1	1								66	62	128
47. New York University College of Medicine	18		99						3															2	99	32	131
48. State University of New York College of Medicine, New York City	7		141																					2	141	10	151
49. State University of New York College of Medicine, Syracuse	2		75																1					2	75	5	80

49. State University of New York College of Medicine, New York City	7		141																						2	141	10	151
49. State University of New York College of Medicine, Syracuse	2		75																1						2	75	5	80
50. University of Rochester School of Medicine and Dentistry	3		37			3			1										1			2	3			37	34	71
51. University of North Carolina School of Medicine	1		1	65							1															65	3	68
52. Duke University School of Medicine	2		5	24		1	1		1		4		1					4		4			1		1	24	53	77
53. Bowman Gray School of Medicine of Wake Forest College	2		5	28							3							1		1					3	28	26	54
54. University of North Dakota School of Medicine					34																		1			34	6	40
55. University of Cincinnati College of Medicine	2		1			66			2										1		2		1			66	27	93
56. Western Reserve University School of Medicine	1		5			49			6														1		4	49	34	83
57. Ohio State University College of Medicine						151																				151	0	151
58. University of Oklahoma School of Medicine			1				99																			99	2	101
59. University of Oregon Medical School								62							1			4					1			62	15	77
60. Hahnemann Medical College and Hospital of Philadelphia	18		2						73	1										2			1		1	73	36	109
61. Jefferson Medical College of Philadelphia	21		5	1		2			123	2			1							6			2	1	1	123	53	176
62. Temple University School of Medicine	15		7			2	1		92																7	92	36	128
63. University of Pennsylvania School of Medicine	13		4	3		3			77	1			1					1		1			1			77	48	125
64. Woman's Medical College of Pennsylvania	2		14			1			15															1	1	15	36	51
65. University of Pittsburgh School of Medicine						3	1		94											1						94	6	100
66. Medical College of South Carolina											79															79	0	79
67. University of South Dakota School of Medical Sciences												35													1	35	7	42
68. University of Tennessee College of Medicine			1	4			4		1		3		158	4			1		1				1			158	59	217
69. Meharry Medical College	1		2	9							7		8	3			4								2	8	67	75
70. Vanderbilt University School of Medicine			3			2	1						21				1						1		1	21	30	51
71. University of Texas Southwestern Medical School														102												102	0	102
72. University of Texas Medical Branch														166												166	0	166
73. Baylor University College of Medicine		3	3			3	5		1				1	42											4	42	45	87
74. University of Utah School of Medicine															45										1	45	9	54
75. University of Vermont College of Medicine	1		2							1						16										16	34	50
76. University of Virginia Department of Medicine	2		5			2			3				1				52		5						1	52	25	77
77. Medical College of Virginia	3			2					1				1				69			1			1		2	69	15	84
78. University of Washington School of Medicine																		67							1	67	10	77
79. West Virginia University School of Medicine																			31							31	0	31
80. University of Wisconsin Medical School			2																	84			1			84	3	87
81. Marquette University School of Medicine	2		6			8			2									4	1	51			1		1	51	51	102
82. University of Puerto Rico School of Medicine			1																				50		1	50	2	52
Total	282	12	908	150	39	294	127	74	561	33	102	41	201	355	56	20	150	103	69	163	13	88	5	97	5,300	2,386	7,686

TABLE 17.—*Ratio of freshman students to State populations, 1955–56*

[Numbers of students per 100,000 population [1] in the approved medical and basic science schools of the United States]

†Nevada	0.9
†New Mexico	1.5
†Arizona	2.2
†Maine	2.4
†Delaware	2.6
Missouri	3.1
California	3.3
North Carolina	3.5
West Virginia	3.5
†Idaho	3.6
Maryland	3.8
†Montana	3.8
†Rhode Island	3.9
Alabama	4.0
Illinois	4.0
Washington	4.0
Michigan	4.1
New Hampshire	4.1
Texas	4.2
Virginia	4.2
Indiana	4.3
†Wyoming	4.3
Connecticut	4.4
Georgia	4.4
Kentucky	4.4
Ohio	4.4
Oregon	4.4
Wisconsin	4.4
Kansas	4.5
South Carolina	4.5
Massachusetts	4.6
Minnesota	4.9
Pennsylvania	5.0
Iowa	5.1
Florida	5.2
†New Jersey	5.2
Vermont	5.3
Colorado	5.4
Mississippi	5.4
Louisiana	5.7
Oklahoma	5.9
Tennessee	5.9
New York	6.0
Arkansas	6.1
North Dakota	6.1
South Dakota	6.1
District of Columbia	6.3
Utah	7.2
Nebraska	7.3
United States	4.6

[1] Estimated July 1, 1955, total population excluding members of the Armed Forces stationed in each area, Current Population Reports, series P 25, No. 129, Jan. 20, 1956.
†State with no medical school.

37. Association of American Medical Colleges. Admission Requirements of American Medical Colleges, 1957. Chicago, The Association, 1956. Pp. 8–12.

How Are Applicants Evaluated?

This is a meaningful question because many intangible factors may sometimes be of crucial importance for the young person who is preparing for a medical education. This section considers some of the points on which the applicant to medical school is evaluated and a few of the methods used in the selection process.

Tables 10, 11, and 12 report some preliminary findings from a survey conducted in the spring of 1956 among admissions committee members. This survey was made as part of the preparation for a series of two institutes on evaluation of the student to be held in fall 1956 and fall 1957. At the 1956 institute the participants will concentrate on the appraisal of applicants to medical school. Representatives from medical schools, other departments in universities, undergraduate colleges, and industry will meet for 3 days to discuss the many facets of this complex problem.

Changes in the selection procedures presently followed in individual medical schools may or may not develop as a result of these meetings—their purpose is not to foster change but to offer an opportunity for discussion and analysis of the most effective ways of identifying promising students. The institute is mentioned here to emphasize the fact that the selection of students is not a fixed, static procedure among medical schools. Methods of appraisal vary widely both among schools and among admissions committee members of a single school, and this is as it should be since the science of selection is in its infancy. What is important today is that medical educators are aware of inadequacies in present-day selection techniques and are eager to work toward their improvement.

From table 10 the student will get some idea of the kinds of characteristics to which admissions committee members attach varying degrees of importance as they screen applicants in an attempt to select those they feel show greatest promise for a potentially successful career in medicine. Character and integrity and intellectual ability are felt by nearly all schools to be of major importance. Actually, almost all more or less observable characteristics are believed to be of at least some importance. But what does this mean? It means that accidents of birth and environment notwithstanding, the qualities the candidate himself reveals and communicates to the admissions committee are truly basic in the selection process. Other than the application blank itself, some of the typical avenues through which the student's individual characteristics are communicated are briefed below.

TABLE 10.—*The importance of 14 student characteristics in evaluating medical school applicants*

Student characteristics considered in final admission decision	Percent of 534 admission committee members attaching—				
	Much importance	Some importance	Little importance	No importance	No response
Character and integrity	90	8	(1)	0	1
Intellectual characteristics	89	10	0	0	(1)
Academic achievement	72	27	(1)	0	(1)
Emotional characteristics	64	33	2	0	1
Motivation toward a career in medicine	55	34	9	1	1
Initiative	52	41	4	(1)	3
Personality characteristics	51	45	3	1	2
Breadth of interest	35	57	6	0	2
Strength of drive for academic achievement	33	54	11	1	1
Nature of interest in medicine	32	44	21	1	2
Philosophy of life	22	47	24	4	3
Social characteristics	20	60	16	1	2
First impression in interview	11	51	29	4	4
Physical characteristics	6	43	45	6	1

[1] Less than 1 percent response.

The interview

The applicant to medical school should be prepared for personal interviews with representatives of the schools to which he applies. Over half of the schools (table 11) have interviewed every applicant accepted for admission to the fall 1956 freshman class. Some schools, on the other hand, use the interview sparingly or not at all, relying more heavily on other techniques of assessment. In the current survey, 62 percent of admissions committee members indicated that they attach at least some importance to the first impressions created in the interview. Generally it is felt that the interview offers an opportunity to observe such characteristics as poise, intellectual quality, cultural breadth, skill in communication, and the like. The student in his turn has an opportunity to make a favorable impression and to discuss any questions or problems he may have. Students should wait for the schools to take the initiative in arranging interviews and they should remember that in many instances acceptances are given without them.

TABLE 11.—*Estimated percentage of 1956–57 freshmen interviewed by number of schools*

100 percent	53	50 to 59 percent	1
90 to 99 percent	15	40 to 49 percent	1
80 to 89 percent	4	30 to 39 percent	1
70 to 79 percent	4	20 to 29 percent	3
60 to 69 percent	3		

Undergraduate transcript

As shown in table 10, admissions committee members tend to attach more importance to the applicant's intellectual characteristics than to his record of academic achievement. Nevertheless, it should be remembered that grades are important indicators of intellectual ability and of potential achievement in medical school. It might even be said that some of the best insurance available for getting into medical school is a good academic record (particularly in science courses) from a good undergraduate college (see table 12). This is not to say that the student who does not have a B average should be discouraged

from applying for entrance to medical school. The policies of over 50 percent of medical schools call for no more than C or C+ averages, and 30 percent of schools indicate no specific minimal grade-average policy. No well-motivated student should be discouraged by the self-styled expert who says "You have to be at the top of your class to get in." Students should expect medical schools to request the undergraduate transcript.

TABLE 12.—*Methods of evaluating the intellectual characteristics of applicants*

Evaluation method for intellectual characteristics	Percent of 534 admission committee members attaching—				
	Great importance	Some importance	Little or no importance	Not used	No response
Overall grades from college transcripts	73	26	(1)	(1)	(1)
Science grades from college transcripts	70	29	1	(1)	(1)
Nonscience grades from college transcripts	27	69	2	(1)	1
Individual letters of recommendation from undergraduate faculty members	30	56	10	2	1
Letters of recommendation from other than undergraduate faculty	2	32	63	2	1
MCAT test scores	37	55	4	3	1

[1] Less than 1 percent response.

Letters of recommendation

Note the indication in table 12 that letters of recommendation from undergraduate faculty members are generally considered to be of some value in evaluating a student's potentialities for medical school training. Note too that letters of recommendation from people other than undergraduate instructors are considered of little or no importance by the majority of admissions committee members. The student's acceptability is not enhanced by influence-seeking letters from local "bigwigs."

Medical college admission test

All medical colleges either require or recommend that the applicant take the MCAT. As can be seen in table 12, the majority of admissions committee members say they attach at least some importance to the scores in evaluating intellectual characteristics. The student should, however, be reassured that these scores are usually, and properly, interpreted along with the college transcript and other records. Approximately 95 percent of applicants take the MCAT, and nearly all of the freshmen entering medical school in the fall of 1956 have taken it.

For students who are just starting their premedical work, there is really nothing to recommend by way of early preparation for the MCAT. The test should not be dreaded, for it is merely one other way of providing information about the student's capacity to learn graduate level materials, his understanding of basic scientific principles, and his breadth of acquaintance with present-day society.

For students who are planning to enter medical school in fall 1958, the following information on procedure will be of interest. The MCAT is prepared and administered by Educational Testing Service under the sponsorship of the Association of American Medical Colleges; it is recommended for all applicants by the association.

Applicants who plan to enter medical school in the fall of 1958 should take the MCAT in May 1957. The test is given twice each year, once in May and again in November. If the candidate wants to be sure that the medical school to which he applies will have his complete records before it begins to accept students for the 1958–59 class, he should take the test in May 1957. In the event the candidate is not able to take the May test, he should apply to take the test in November without waiting for a medical school to request it.

Application for taking the test must be filed with Educational Testing Service. The examination fee is $10, and this entitles the candidate to have his test scores sent to three medical schools. He may have his scores sent to other medical schools not included on his original MCAT application form; the cost is $1 for each additional school he requests.

A bulletin of information that gives application deadlines, test dates, and sample questions, and instructs the student as to where he is to report for examination is prepared annually by Educational Testing Service. Requests should be addressed to:

Medical College Admission Test, Educational Testing Service,
20 Nassau Street, Princeton, N. J.

or

Medical College Admission Test, Educational Testing Service,
Post Office Box 9896, Los Feliz, Los Angeles, Calif.

All applications and fees must reach Princeton at least 2 weeks before the test is given in order that pretest arrangements may be completed in time. The candidate will normally be assigned to take the test at a center located near his home.

The MCAT is designed to measure the student's ability and knowledge as compared with other students. It is divided into four sections as follows:

1. *Verbal ability.*—This is a test of ability to handle verbal concepts that are indicative of capacity to master postgraduate professional studies.

2. *Quantitative ability.*—This is a similar test of scholastic aptitude measured by testing skill in manipulating quantitative concepts.

3. *Understanding modern society.*—Awareness of the contemporary social scene is measured by items pertaining to the kinds of problems studied in the fields of history, economics, government, and sociology.

4. *Basic science.*—Understanding of the basic principles of science as they are developed in the fields of biology, chemistry, and physics is tested in this section.

The student should not try to cram for the test. It is aimed at testing understanding, not at testing recall of specific fact. The score reports are sent to the medical schools and are not released to students or their advisers. There are no established passing or failing grades.

38. Reply to staff outline received from American Medical Association. Also Association of American Medical Colleges. Admission Requirements of American Medical Colleges, 1956. Chicago, The Association, 1955, pages 16–17; Medical Education in the United States and Canada. Journal of the American Medical Association 161: 1659, August 25, 1956. See also question 141.

The council on medical education and hospitals of the American Medical Association and the Association of American Medical Colleges as the recognized medical school accrediting bodies, urge that medical schools specifically require for admission college level theoretical and laboratory courses in inorganic and organic chemistry, physics, biology, and demonstrated competence in English. The composite of medical school admission course requirements are given below in tabular form.

Semester hours of required course work [1]

Courses	Number schools requiring	Median semester hours	Range semester hours
Chemistry (total)	85	16	9-24
Inorganic	85	8	4-10
Qualitative analysis	[2] 15	4	3- 4
Quantitative analysis	41	4	2- 4
Organic	85	6	3- 8
Biology (total)	85	8	6-17
General biology	71	8	2-10
Zoology	44	8	4-14
Comparative anatomy	21	4	3- 5
Embryology	24	4	3- 5
Physics	85	8	6-10
Mathematics	21	6	3- 7
Humanities (total)	80	8	3-24
English	76	6	6-12
Foreign language	32	6	3-13
Other humanities	9	6	6- 8
Social science	15	6	3-15

[1] Courses not mentioned by 5 or more schools are excluded.
[2] This should be interpreted with caution because many schools expect qualitative analysis to be taken as part of inorganic chemistry.

Premedical training of freshmen students in the United States, 1955–56

	Number of freshmen	3 years college training	4 years college training	Number holding degrees	Percentage with degrees
Medical College of Alabama	81	10	71	69	85.2
University of Arkansas	93	34	59	53	57.0
College of Medical Evangelists	99	0	99	97	98.0
University of Southern California	69	25	44	39	57.0
Stanford University	58	33	25	25	43.1
University of California:					
San Francisco	77	44	33	31	40.3
Los Angeles	50	13	37	37	74.0
University of Colorado	86	33	53	39	45.2
Yale University	79	14	65	65	82.3
Georgetown University	115	3	112	111	96.5
George Washington University	102	13	89	68	66.7
Howard University	79	0	79	79	100.0
University of Miami	73	15	58	54	93.1
Medical College of Georgia	101	24	77	77	76.2
Emory University	73	26	47	43	58.9
Chicago Medical School	73	0	73	73	100.0
Northwestern University	133	46	87	83	62.4
Stritch School of Medicine	88	51	37	35	39.8
University of Chicago	72	15	57	45	62.5
University of Illinois	167	91	76	63	37.7

Premedical training of freshman students in the United States, 1955–56—Continued

	Number of freshmen	3 years college training	4 years college training	Number holding degrees	Percentage with degrees
Indiana University	155	77	78	69	44.5
State University of Iowa	120	70	50	43	35.8
University of Kansas	101	9	92	87	86.1
University of Louisville	97	10	87	87	89.7
Louisiana State University	126	41	85	67	53.2
Tulane University	131	50	81	54	41.2
Johns Hopkins University	74	0	74	74	100.0
University of Maryland	96	32	64	61	63.5
Boston University	73	2	71	70	95.9
Harvard Medical School	118	1	117	117	99.2
Tufts University	111	6	105	105	94.6
University of Michigan	206	95	111	111	53.9
Wayne State University	76	41	35	35	46.1
University of Minnesota	128	74	54	50	39.1
University of Mississippi	80	50	30	20	25.0
St. Louis University	127	21	106	95	74.8
University of Missouri	45	16	29	26	57.8
Washington University	87	19	68	62	71.4
Creighton University	76	33	43	38	43.4
University of Nebraska	87	38	49	44	50.6
Dartmouth Medical School	25	23	2	2	8.0
Albany Medical College	64	0	64	64	100.0
University of Buffalo	85	8	77	77	90.6
Columbia University	119	0	119	119	100.0
Cornell University	84	3	81	81	96.4
New York Medical College	128	1	127	124	96.9
New York University	131	10	121	121	92.4
State University of New York:					
New York	151	7	144	135	89.4
Syracuse	80	14	66	66	92.5
University of Rochester	71	4	67	67	94.4
University of North Carolina	68	26	42	39	57.3
Duke University	77	26	51	46	59.7
Bowman Gray School of Medicine	54	6	48	48	88.9
University of North Dakota	40	16	24	24	60.0
University of Cincinnati	93	2	91	91	97.8
Western Reserve University	83	1	82	81	97.6
Ohio State University	151	14	137	134	88.7
University of Oklahoma	101	47	54	42	41.6
University of Oregon	77	28	49	38	49.4
Hahnemann Medical College	109	8	101	101	92.6
Jefferson Medical College	176	5	171	171	97.2
Temple University	128	2	126	126	98.4
University of Pennsylvania	125	2	123	121	96.8
Woman's Medical College	51	5	46	46	90.2
University of Pittsburgh	100	17	83	83	83.0
Medical College of South Carolina	79	21	58	55	69.6
University of South Dakota	42	17	25	25	40.5
University of Tennessee	217	117	100	66	30.4
Meharry Medical College	75	2	73	72	96.0
Vanderbilt University	51	25	26	26	51.0
Southwestern Medical School	102	31	71	59	30.4
University of Texas	166	35	131	115	83.7
Baylor University	87	27	60	57	65.5
University of Utah	54	17	37	30	55.6
University of Vermont	50	4	46	46	92.0
University of Virginia	77	5	72	72	93.5
Medical College of Virginia	84	14	70	70	83.3
University of Washington	77	24	53	15	19.5
West Virginia University	31	11	20	18	58.1
University of Wisconsin	87	61	26	26	29.9
Marquette University	102	48	54	42	41.2
University of Puerto Rico	52	24	28	33	63.5
Total	7,686	1,933	5,753	5,375	69.9

39. Association of American Medical Colleges. Admission Requirements of American Medical Colleges, 1957, Chicago, The Association, 1956, p. 14.

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40. Association of American Medical Colleges. Admission Requirements of American Medical Colleges, 1956, Chicago, The Association, 1955, p. 11.

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41. Medical Education in the United States and Canada, Journal of the American Medical Association 161: 1659, August 25, 1956. Data reproduced below.

Comparative analysis of college records of 1st-year medical students, 1950–56

College grade average, 1st-year medical students	1950–51	1951–52	1952–53	1953–54	1954–55	1955–56
3.5 to 4.0 (A)	40	30	18.0	21.1	16.8	15.8
2.6 to 3.5 (B)	43	55	67.5	68.9	69.0	70.6
1.0 to 2.5 (C)	17	15	14.5	10.0	14.2	13.6

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42. Association of American Medical Colleges. Admission Requirements of American Medical Colleges, Chicago, The Association, 1956, p. 23. Also, reply to staff outline received from American Medical Association, reproduced below.

There are certain restrictions for admission to medical schools, based upon State of legal residence.

Of 40 publicly owned schools—

(*a*) 10 restrict admission to residents of the State in which the school is located.

(*b*) 29 give preference to residents of their State.

(*c*) 1 has no restriction based on residence.

Of 45 privately owned schools—

(*a*) None restrict admission to residents of their State.

(*b*) 14 give preference to residents of their State.

(*c*) 31 have no restriction based on residence.

There exist certain other restrictions.

(*a*) 2 medical schools admit only male students.

(*b*) 1 medical school admits only women.

(*c*) 1 medical school admits only Negroes.

(*d*) 1 medical school gives preference to Seventh-day Adventists.

(*e*) Jesuit schools generally give preference to students of the Catholic faith.

(*f*) Certain southern schools will not accept Negro students.

43. Medical Education in the United States and Canada, Journal of the American Medical Association 161: 1654-1655, August 25, 1956. Data presented below compiled by Division of Public Health Methods, Public Health Service.

Medical school freshmen who are from out of State, 1955–56

Percent of medical school freshmen from out of State	Number of medical schools		
	Total	4-year schools	Basic science schools
Total schools	82	76	6
Public schools	39	34	5
None	10	7	3
Less than 10 percent	15	15	0
10 percent or more	14	12	2
Private schools	43	42	1
None	1	1	0
Less than 10 percent	3	3	0
10 to 74 percent	27	27	0
75 percent or more	12	11	1

44. General information.

45. Association of American Medical Colleges. Admission Requirements of American Medical Colleges, 1956. Chicago, the Association, 1955, p. 11.

46, 47. Medical Education in the United States and Canada, Journal of the American Medical Association 161: 1653, August 25, 1956. See question 3.

48, 49. Reply to staff outline received from American Medical Association.

NUMBERS OF UNITED STATES MEDICAL SCHOOL GRADUATES, PRESENT AND PROSPECTIVE

The size of the classes already enrolled in United States schools will determine the number of graduates for the next 4 years. Allowing for an average attrition equal to 8 percent of the entering class, there should be approximately the following number of graduates in the immediate future.

	Graduates
1957	6,850
1958	6,970
1959	7,120
1960	7,290

Without any change in enrollments in existing medical schools, the number of graduates beyond 1960 would be influenced only by the development of additional medical schools. Funds have already been appropriated for a medical school at the University of Kentucky at Lexington. Initial planning calls for an entering class of 50 students to begin medical study in 1959. Future classes are to be expanded to 75. It seems likely that another medical school will be developed as part of the University of Connecticut. A final decision is yet to be made, however, and even if favorable action is taken in the near future it is unlikely that there could be graduates of this school before 1965.

Therefore, predictions beyond 1960, based on unchanged enrollment in existing schools would be as follows. This assumes early development of University of Connecticut school.

1961	7,290
1962	7,290
1963 (addition of 50 (0.08×50) from University of Kentucky)	7,335
1964 (addition of 25 (0.08×25) from University of Kentucky)	7,360
1965 (addition of 50 from University of Connecticut)	7,410

There has been some very preliminary discussion of the possibility of developing additional medical schools in Michigan, Arizona, and New Mexico. There is not as yet sufficient evidence upon which to base an estimate as to whether any or all of these preliminary discussions will culminate in the development of other schools. Certainly, availability of financing will be one of the major factors influencing any such decision. In any case, none of these possibilities can be expected to increase the number of graduates up to and including 1965.

Any increase in this period beyond that tabulated above will be entirely dependent upon increased enrollment in existing medical schools. Such an increase will be primarily determined by three factors.

1. Increased number of qualified applicants for the study of medicine.
2. Increased number of qualified faculty personnel.
3. Increased facilities in existing schools.

As indicated previously, there is every reason to believe that there will be a very significant increase in the number of applicants for medical study. How this larger demand for medical study will be satisfied is already a matter of serious concern to medical educators and the medical profession.

Certain progressive action has already been taken which should augment the numbers of teaching personnel, particularly in the basic science areas where the need is most acute. Whether this program will be sufficient is a matter of conjecture.

Even if the other two factors are favorably resolved, there can be no tangible increase in enrollments in existing schools without a concomitant increase in physical facilities. This is particularly true of the basic-medical-science facilities. Certain existing medical schools already have clinical facilities that would allow for expansion of their classes but this expansion is not feasible because of limited basic-science facilities. In other schools limitation of clinical facilities

is the major restricting factor. Expansion of these physical facilities is in most instances dependent upon the availabliity of necessary financing.

At the time S. 1323 was being considered, medical schools were queried as to the effect new construction possible under the provisions of that bill would have on student enrollment. The 82 medical schools then in existence indicated that with the construction of additional facilities possible under the provisions of S. 1323, they would be able to increase the size of the classes entering medical school by more than 10 percent.

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50. Medical Licensure Statistics for 1955. Journal of the American Medical Association 161: 359–360, 370, 376–378, May 26, 1956. Data reproduced below.

PROFESSIONAL EDUCATIONAL REQUIREMENTS OF LICENSING BOARDS

The length of the medical course is specified in the medical practice acts or board regulations of several of the medical licensing boards. In other States the law or ruling reads that the professional educational requirement accepted for approval by the Council on Medical Education and Hospitals or for membership in the Association of American Medical Colleges, or both, is the regulation for licensure. Table 19 outlines the requirement of each State in this respect. This table does not record the internship, which is a requirement for licensure by 31 boards.

TABLE 19.—*Professional educational requirements of medical licensing boards*

	Length of medical school academic year				Total time spent in medical school, registration to graduation			
	Weeks	Months	Same as A.A.M.C. and C. M. E. & H.[1]	Not specified by board	Weeks annual	Months annual	Years	Same as A.A.M.C. and C. M. E. & H.[1]
Alabama		9					4	
Arizona			(2)					(2)
Arkansas		9					4	
California		9					4	
Colorado				(2)			4	
Connecticut	32						4	
Delaware				(2)			4	
District of Columbia		9				36	4	
Florida			(2)					(2)
Georgia		9					4	
Idaho				(2)			4	
Illinois		9					4	
Indiana		8				42		
Iowa				(2)			4	
Kansas		9					4	
Kentucky		9					4	
Louisiana			(2)				4	(2)
Maine	36						4	
Maryland			(2)				4	(2)
Massachusetts		9					4	
Michigan	32					36		
Minnesota	36						4	
Mississippi	32						4	
Missouri	32						4	
Montana		9					4	
Nebraska		8					4	
Nevada		9					4	
New Hampshire		9					4	
New Jersey		8					4	
New Mexico				(2)				(2)
New York		8					4	
North Carolina				(2)			4	
North Dakota		8				32	4	
Ohio		9					4	
Oklahoma		10					4	
Oregon		8				32		
Pennsylvania	32						4	
Rhode Island				(2)			4	
South Carolina		9					4	
South Dakota				(2)				(2)
Tennessee	36							(2)
Texas		8					4	
Utah		9					4	
Vermont [3]							4	
Virginia		8					4	
Washington			(2)				4	(2)
West Virginia				(2)			4	(2)
Wisconsin			(2)				4	(2)
Wyoming			(2)					(2)
Alaska			(2)					(2)
Canal Zone		9					4	
Guam		9					4	
Hawaii				(2)				(2)
Puerto Rico			(2)				4	(2)
Virgin Islands				(2)			4	

[1] Association of American Medical Colleges and Council on Medical Education and Hospitals of the American Medical Association.
[2] Implies yes.
[3] 900 hours.

REQUIRED INTERNSHIPS

* * * Currently, Duke University School of Medicine is the only school in the United States that specifies the internship requirement but does not withhold the degree until the internship is completed. The degree is issued at the end of the 4-year medical course, but the school obtains from each student a signed agreement that he will

spend 2 years in training in a hospital or laboratory before entering practice. * * *

One year of internship, as a prerequisite to licensure, is required by the licensing boards of 26 States, the District of Columbia, Alaska, the Canal Zone, Hawaii, and Puerto Rico. Kansas and South Carolina this year reported that the internship was not a requirement for licensure. Twelve boards specify that the internship must be a rotating service. Arizona no longer indicates that a rotating service is desirable. New Jersey reported that a 1-year general rotating internship or a 2-year residency in a specialty will meet the board's requirement. Alaska will accept active practice for 4 years in lieu of the internship requirement. Those licensing boards that require an internship for licensure are listed in table 23.

TABLE 23.—*Medical licensing boards requiring a 1-year internship* [1]

Alabama	Michigan [2]	Vermont [2]
Arizona	Nevada	Washington [2]
California	New Hampshire	West Virginia
Colorado	New Jersey [3]	Wisconsin
Delaware [2]	North Dakota	Wyoming [2]
District of Columbia	Oklahoma [2]	Alaska [4]
Idaho	Oregon	Canal Zone
Illinois [2]	Pennsylvania [2]	Hawaii [2]
Iowa	Rhode Island [2]	Puerto Rico [2]
Kentucky	South Dakota	Virgin Islands [2]
Maine	Utah	

[1] Some States require the internship for graduates of medical faculties abroad and from reciprocity or endorsement applicants.
[2] Internship must be a rotating service.
[3] 1-year general rotating internship or 2-year residency in a specialty.
[4] Unless in active practice for 4 years.

NATIONAL BOARD OF MEDICAL EXAMINERS

The National Board of Medical Examiners, founded in 1915, includes in its membership representation from the Federation of State Medical Boards of the United States, the Council on Medical Education and Hospitals of the American Medical Association, the Association of American Medical Colleges, the armed services, and the Veterans' Administration. Members at large are elected from among leaders in medicine throughout the United States. The purpose of this examining agency is to administer an examination that may be accepted as an adequate qualification for a medical license. The national board is not a national licensing body. It is the function of the individual States to determine who shall practice within their borders and to maintain high standards of medical practice in accordance with their own rules and regulations.

The certificate of the National Board of Medical Examiners is accepted as an adequate qualification by the medical licensing authorities of the States, the District of Columbia, and the Territories with the following exceptions: Arkansas, Florida, Georgia, Indiana, Louisiana, Michigan, North Carolina, Pennsylvania, and Texas. The New York Board of Medical Examiners allows only 1 grade below 70. Pennsylvania accepts certificates of the Board issued prior to September 1, 1954, and the Michigan licensing board will accept certificates issued prior to November 1, 1954, but requires a special written sup-

plemental examination. Oral examinations are required by the licensing boards of Illinois, Rhode Island, and Wyoming.

Ten of the boards of examiners in the basic sciences accept the examinations of the national board in lieu of their own. These include the boards of Alaska, Arkansas, Connecticut, Iowa, Michigan, Minnesota, Oklahoma, Tennessee, Wisconsin, and the District of Columbia. Diplomates of the national board are required to take an examination in the basic sciences before obtaining a medical license in Arizona, Colorado, Florida, Nebraska, Nevada, New Mexico, Oregon, Rhode Island, South Dakota, Texas, and Washington.

The examination is divided into three separate parts and may be taken during the course of training in the medical school. Parts 1 and 2 are of the multiple-choice type. Each examination is developed by a separate committee appointed by the board composed of teachers and clinicians in their own fields. All work pertaining to the development of the test is carried on in the offices of the national board. The scoring procedure is administered for the board by the Educational Testing Service of Princeton, N. J. The third, or final, part of the examination provides a total of 7 hours for each candidate to demonstrate his ability to apply his knowledge of clinical problems in 4 major elements of general practice. In each of these subjects time is provided for the candidate to study a patient or clinical specimens. He is then required to write an essay test based upon the patient or the clinical specimens that he has studied. His essay paper is then reviewed by separate examiners in each subject. Following this, the examiners question the candidate in other aspects of the subject.

Examinations in part 1 are held in June and September and in part 2 in April and June. Part 3 of the examination is administered through subsidiary boards located in the major cities of the United States during the last 2 weeks of June of each year. Where indicated, interim part 3 examinations will be organized by an individual subsidiary board during the course of the year. The dates of all examinations are posted on medical school bulletin boards and published in the Journal and in the National Board Examiner, the official publication of the National Board of Medical Examiners.

The national board admits to its examinations any student in good standing in approved medical schools in the United States and Canada. The national board does not, at the present time, admit to its examinations graduates of other medical schools. Upon receipt of a request initiated by a State licensing board, a specialty board, or a medical school, an individual trained in a foreign medical school may be admitted to the national board examinations in order to satisfy special requirements or regulations of the licensing board, specialty board, or the medical school. He is not considered a candidate for a certificate but is admitted to the examination as a service to the agency requesting the service and the grades are sent only to the board or school concerned.

In the following paragraphs data are presented regarding the examinations conducted and the issuance of certificates by the national board. This is the 34th annual compilation of these statistics. The board's first examination was given October 1916. From that date and up to and including a test given in June 1921, 11 examinations were given and 268 candidates were certified. Since 1922 the examination has been divided into three parts, which must be taken and completed

in the following sequence: Part 1, a written examination in 6 basic science subjects; part 2, a written examination in 5 major clinical divisions and their component subjects or subdivisions; and part 3, a clinical and practical evaluation of the candidate's ability in observation, in diagnostic acumen, and in the principles of therapy, applicable to 4 major elements of general practice; namely, clinical medicine, pediatrics, clinical surgery, and obstetrics and gynecology.

TABLE 40.—*National Board examinations in pt. 1, 1922–55*

Date	Total examinations	Passed	Incomplete	Failed	Percent failed
February 1955	372	279	44	49	18.0
June 1955	2,124	1,206	736	182	13.0
September 1955	700	250	393	57	18.1
Total	3,196	1,735	1,173	288	14.2
1922	388	263	58	67	20.3
1923	507	349	77	81	18.8
1924	591	415	69	107	20.5
1925	608	400	50	158	28.3
1926	625	436	104	85	16.3
1927	702	452	159	91	16.8
1928	843	533	231	79	12.9
1929	1,096	675	331	90	11.8
1930	1,260	801	345	114	12.5
1931	1,277	755	425	97	11.4
1932	1,307	847	371	89	9.5
1933	1,234	782	316	136	14.8
1934	1,241	809	347	85	9.5
1935	1,264	785	410	69	8.1
1936	1,344	858	363	123	12.5
1937	1,435	871	415	149	14.6
1938	1,654	986	508	160	14.0
1939	1,733	1,048	460	225	17.7
1940	1,653	1,069	375	209	16.4
1941	1,640	1,087	346	207	16.0
1942	1,867	1,204	471	192	13.8
1943	2,656	1,441	962	253	14.9
1944	4,229	2,326	1,465	438	15.9
1945	3,865	2,106	1,475	284	11.8
1946	3,148	1,695	1,189	264	13.5
1947	3,514	1,844	1,352	318	14.7
1948	3,807	2,178	1,262	367	14.4
1949	3,823	2,337	1,243	243	9.4
1950	3,678	2,358	986	334	9.0
1951	3,520	2,153	1,038	329	9.3
1952	3,989	2,467	1,147	375	9.4
1953	4,278	2,866	980	432	13.0
1954	3,252	2,286	677	289	11.2
1955	3,196	1,735	1,173	288	14.2
Total	71,224	43,217	21,180	6,827	13.1

Tables 40 and 41 record the results of examinations given in parts 1 and 2 during 1955 and for each year since 1922. The data shown represent examinations conducted rather than persons examined. The tabular data include candidates who fail and are reexamined during the same year and those who pass parts 1 and 2 in the same year.

In 1955, 3,196 examinations were given in part 1; 1,735 passed, and 288, or 14.2 percent, failed. There were 1,173 incomplete examinations given. In part 2, 2,220 examinations were held; 2,181 passed, and 36, or 1.6 percent, failed. Incomplete examinations are seldom given in this part. There were three such examinations given in 1955.

Since 1922 a total of 71,224 examinations have been given in part 1 and 37,570 in part 2. During this period 43,217 passed part 1 and 35,962 passed part 2. In the 34-year period shown, there have been 6,827 failures in part 1 (13.1 percent), and 1,532 in part 2 (4.3 percent).

In 1955, 2,090 tests were given in part 3; 2,077 passed and 13 (0.6 percent) failed. Results of examinations in part 3 in 1955 and in the 33 preceding years are given in table 42. In 34 years, 32,568 were tested, of whom 31,755 were granted the certificate of the board. The percentage of failures in this final examination in 34 years was 2.5. The 2,090 physicians certified as diplomates in 1955 represented 66 medical schools in the United States, 6 in Canada, and 30 medical schools of other countries. The school and the number of examinees from each are included in table 43.

The data presented in the preceding tables represent examinations given. The number of persons tested during any one year is recorded for the 34-year period in table 44. The classification "Passed" or "Failed" in cases in which more than one examination has been taken in a given year are based on the results of the last examination during the year in question. Thus, if in 1955 a candidate passed part 1 but at a subsequent examination in 1955 he failed part 2, he is computed in this table as having failed. On this basis figures computed indicate that there were 6,968 persons who took at least one test of the National Board in 1955. In all, 126,975 persons were examined in one or more of the annual examinations, of whom 103,870 passed, 15,414 took incomplete examinations, and 7,691 (6.3 percent) failed.

TABLE 41.—*National board examinations in pt. 2, 1922–1955*

Date	Total examinations	Passed	Incomplete	Failed	Percent failed
February 1955	85	84		1	1.2
April 1955	1,664	1,633	3	28	1.7
June 1955	471	464		7	1.5
Total	2,220	2,181	3	36	1.6
1922	109	90	0	19	17.4
1923	192	170	2	20	10.5
1924	267	227	0	40	15.0
1925	342	309	0	33	9.6
1926	381	334	1	46	12.1
1927	361	314	1	46	12.8
1928	410	371	1	38	9.3
1929	465	399	19	47	10.5
1930	620	543	7	70	11.4
1931	719	630	2	87	12.1
1932	732	674	0	58	7.9
1933	714	651	0	63	8.8
1934	633	583	0	50	7.9
1935	689	620	0	69	10.0
1936	768	716	2	50	6.5
1937	855	803	1	51	6.0
1938	861	815	0	46	5.3
1939	938	884	0	54	5.8
1940	1,028	963	9	56	5.5
1941	1,001	954	1	46	4.6
1942	1,072	1,031	0	41	3.8
1943	1,861	1,805	0	56	3.0
1944	1,405	1,350	0	55	3.9
1945	1,599	1,565	0	34	2.1
1946	1,825	1,782	0	43	2.4
1947	1,641	1,613	0	28	1.7
1948	1,742	1,725	0	17	0.9
1949	1,737	1,691	0	46	2.6
1950	1,863	1,837	0	26	1.3
1951	2,045	2,017	0	28	1.4
1952	2,017	2,001	0	16	0.8
1953	2,200	2,145	1	54	2.4
1954	2,258	2,169	26	63	2.8
1955	2,220	2,181	3	36	1.6
Total	37,570	35,962	76	1,532	4.3

In 1955, there were 2,922 licenses to practice medicine issued by endorsement of the certificate of the National Board of Medical Examiners by 47 boards, the District of Columbia, Alaska, Canal Zone, Guam, Hawaii, and Puerto Rico. The number registered by each of these licensing boards is recorded in table 45. There have been 32,319 licenses issued on the basis of endorsement of the board's certificate by the various States, Territories, and outlying possessions since 1915.

TABLE 42.—*National board examinations in pt. 3, 1922–55*

Year	Total examinations	Passed	Failed	Percent failed
1922	22	22	0	.0
1923	82	81	1	1.2
1924	126	120	6	4.8
1925	219	206	13	5.9
1926	255	243	12	4.7
1927	293	272	21	7.2
1928	322	306	16	5.0
1929	352	337	15	4.3
1930	420	401	19	4.5
1931	437	419	18	4.1
1932	550	522	28	5.1
1933	551	526	25	4.5
1934	567	548	19	3.4
1935	598	578	20	3.3
1936	576	547	29	5.0
1937	668	630	38	5.7
1938	706	682	24	3.4
1939	770	729	41	5.3
1940	792	771	21	2.7
1941	910	885	25	2.7
1942	1,054	1,041	13	1.2
1943	1,230	1,213	17	1.4
1944	1,168	1,146	22	1.8
1945	1,245	1,232	13	1.0
1946	1,634	1,613	21	1.2
1947	1,741	1,723	18	1.0
1948	1,715	1,700	15	.9
1949	1,685	1,674	11	.6
1950	1,752	1,736	16	.9
1951	1,738	1,708	30	1.7
1952	2,128	2,036	92	4.3
1953	2,039	1,979	60	2.9
1954	2,133	2,052	81	3.8
1955	2,090	2,077	13	.6
Total	32,568	31,755	813	2.5

TABLE 43.—*Diplomates from individual medical schools, 1955*

UNITED STATES		UNITED STATES—continued	
Medical College of Alabama	1	University of Illinois	31
College of Medical Evangelists	33	Indiana University	2
University of Southern California	4	State University of Iowa	9
Stanford University	3	University of Kansas	1
University of California	3	University of Louisville	6
University of Colorado	2	Johns Hopkins University	5
Yale University	65	University of Maryland	10
Georgetown University	95	Boston University	69
George Washington University	74	Harvard Medical School	136
Howard University	12	Tufts College Medical School	108
Emory University	2	University of Michigan	7
Chicago Medical School	72	Wayne University	2
Northwestern University	38	University of Minnesota	2
Stritch School of Medicine	16	St. Louis University	6
University of Chicago	34	Washington University	17
		Creighton University	5

TABLE 43.—*Diplomates from individual medical schools, 1955*—Continued

UNITED STATES—continued	
University of Nebraska	6
Albany Medical College	43
State University of New York, Brooklyn	133
University of Buffalo	69
Columbia University	111
Cornell University	71
New York Medical College	115
New York University	134
University of Rochester	57
State University of New York, Syracuse	64
University of North Carolina	1
Duke University	22
University of Cincinnati	3
Western Reserve University	4
Ohio State University	11
University of Oklahoma	1
University of Oregon	4
Hahnemann Medical College	49
Jefferson Medical College	28
Temple University	37
University of Pennsylvania	39
Woman's Medical College	17
University of Pittsburgh	2
Medical College of South Carolina	1
University of Tennessee	3
Meharry Medical College	3
Baylor University	1
University of Utah	2
University of Vermont	36
University of Virginia	2
Medical College of Virginia	8
University of Washington	7
Marquette University	13
University of Puerto Rico	16
Total	1,983

CANADA	
University of Manitoba	1
University of Ottawa	1
University of Western Ontario	1
University of Toronto	3
McGill University	32
University of Montreal	2
Total	40

UNAPPROVED SCHOOL	
Middlesex	1
Total	1

FOREIGN	
University of Sydney, Australia	1
University of Vienna, Austria	1
Peiping Union Medical College, China	3
Pennsylvania Medical School, China	9
Woman's Christian Medical College, China	2
National College of Medicine of Shanghai, China	2
West China Union University, China	2
Tung Chi Medical College, China	1
University of Havana, Cuba	1
University of Charles, Czechoslovakia	2
University of Durham Medical School, England	1
University of Liverpool, England	1
University of London, England	3
Licentiate of the Royal College of Physicians of London and member of the Royal College of Surgeons of England	2
Government Medical School, Iran	1
American University of Beirut, Lebanon	2
University of St. Joseph, Lebanon	1
Mukden Medical College, Manchuria	1
University of Amsterdam, Netherlands	1
University of Groningen, Netherlands	1
University of Leiden, Netherlands	2
University of Utrecht, Netherlands	1
University of Glasgow, Scotland	2
Licentiate of the Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, Royal Faculty of Physicians and Surgeons of Glasgow, Scotland	1
Polish School of Medicine, Scotland	1
University of Basel, Switzerland	2
University of Geneva, Switzerland	3
University of Lausanne, Switzerland	1
University of Zurich, Switzerland	1
Chulakankarana University, Thailand	1
Total	53

A number of medical schools use national board examinations for their own purposes. In some schools the entire second-year class takes part 1 at the end of the second year; in others part 2 serves as a comprehensive examination at the end of the fourth year; in still other schools both parts 1 and 2 are taken by all students. At the present time there are 30 medical schools in which 25 or more students take

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University of Pennsylvania	39
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University of Pittsburgh	2
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University of Tennessee	3
Meharry Medical College	3
Baylor University	1
University of Utah	2
University of Vermont	36
University of Virginia	2
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University of Washington	7
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Pennsylvania Medical School, China	9
Woman's Christian Medical College, China	2
National College of Medicine of Shanghai, China	2
West China Union University, China	2
Tung Chi Medical College, China	1
University of Havana, Cuba	1
University of Charles, Czechoslovakia	2
University of Durham Medical School, England	1
University of Liverpool, England	1
University of London, England	3
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University of St. Joseph, Lebanon	1
Mukden Medical College, Manchuria	1
University of Amsterdam, Netherlands	1
University of Groningen, Netherlands	1
University of Leiden, Netherlands	2
University of Utrecht, Netherlands	1
University of Glasgow, Scotland	2
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Polish School of Medicine, Scotland	1
University of Basel, Switzerland	2
University of Geneva, Switzerland	3
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University of Zurich, Switzerland	1
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national board examinations. In 13 schools the national board examinations are used for the entire class for either part 1 or part 2 or both parts 1 and 2.

TABLE 44.—*Parts 1, 2, and 3, excluding duplications, 1922–55*

Year	Total examinations	Passed	Incomplete	Failed	Percent failed
1922	525	381	58	86	18.4
1923	775	594	79	102	14.7
1924	978	756	69	153	16.8
1925	1,167	915	50	202	18.1
1926	1,161	930	105	126	11.9
1927	1,248	947	142	159	14.4
1928	1,430	1,101	211	118	9.7
1929	1,723	1,280	319	124	8.8
1930	2,044	1,547	322	175	10.2
1931	2,218	1,632	410	176	9.7
1932	2,342	1,850	355	137	6.9
1933	2,277	1,806	280	191	9.6
1934	2,261	1,801	330	130	6.7
1935	2,368	1,831	408	129	6.6
1936	2,517	1,989	353	175	8.1
1937	2,735	2,151	397	187	8.0
1938	2,992	2,308	493	191	7.6
1939	3,221	2,476	443	302	10.9
1940	3,188	2,597	363	228	8.1
1941	3,318	2,749	332	237	7.9
1942	3,607	3,014	391	202	6.3
1943	4,514	3,671	606	237	6.1
1944	5,363	4,235	759	369	8.0
1945	5,614	4,468	886	260	5.5
1946	5,912	4,730	898	284	5.7
1947	6,249	4,965	1,002	282	5.3
1948	6,389	5,194	902	293	5.3
1949	6,493	5,376	880	237	4.2
1950	6,596	5,630	665	301	4.5
1951	6,602	5,601	699	302	4.5
1952	7,334	6,204	729	401	5.5
1953	7,786	6,708	584	494	6.8
1954	7,060	6,222	472	366	5.5
1955	6,968	6,211	422	335	5.1
Total	126,975	103,870	15,414	7,691	6.3

TABLE 45.—*Licenses granted on the basis of national board certificates, 1955*

Alabama	12	New Mexico	1
Arizona	9	New York	861
California	403	North Carolina	2
Colorado	24	North Dakota	7
Connecticut	168	Ohio	112
Delaware	4	Oklahoma	10
District of Columbia	92	Oregon	25
Georgia	12	Pennsylvania	91
Idaho	8	Rhode Island	18
Illinois	100	South Carolina	16
Iowa	19	South Dakota	6
Kansas	12	Tennessee	19
Kentucky	12	Utah	10
Maine	30	Vermont	26
Maryland	96	Virginia	40
Massachusetts	273	Washington	38
Michigan	30	West Virginia	14
Minnesota	64	Wisconsin	19
Mississippi	4	Wyoming	3
Missouri	29	Alaska, Canal Zone, Guam, Hawaii, and Puerto Rico	35
Montana	8		
New Hampshire	25		
New Jersey	135	Total	2,922

The officers of the board are Robert A. Moore, M. D., president; Herman G. Weiskotten, M. D., vice president; John P. Hubbard, M. D., executive secretary and treasurer; J. Stewart Rodman, M. D., honorary medical secretary; Christian J. Lambertsen, M. D., assistant secretary; George D. Ludwig, M. D., assistant secretary; and Everett S. Elwood, consultant on State board relations.

The address of the board is 133 South 36th Street, Philadelphia.

51, 52. Medical Licensure Statistics for 1955. Journal of the American Medical Association 161: 341, May 26, 1956.

CANDIDATES EXAMINED BY MEDICAL EXAMINING BOARDS

Compilations referring to those examined for medical licensure in 1955 by 53 licensing boards are given in table 4 (pp. 342–344). For each board the number who passed and failed is recorded, the medical school of graduation, and the percentage of failures for each school and for each licensing board, the number of States in which graduates of a given school were examined, and the percentage of failures for each school and each State. Medical schools in the United States that are no longer in operation, unapproved medical schools in the United States, foreign faculties of medicine, and schools of osteopathy are not listed by name, but the numbers examined in each State in these four categories are included after those for existing medical schools in the United States and Canada.

During 1955 there were 8,501 applicants for licensure by written examination, of whom 7,400 passed and 1,101, or 12.9 percent, failed. The candidates examined represented 74 approved medical schools in the United States, 11 approved medical schools of Canada, 1 approved medical school in the United States no longer operating, 199 faculties of medicine of foreign countries, 5 unapproved medical schools in the United States that are no longer in existence, and 7 schools of osteopathy. Osteopaths who were granted the privilege to practice medicine, surgery, or both by medical examining boards are included in these statistics. Osteopaths who obtain the legal right to special practice by other than medical examining boards are not included in these compilations.

Examination and reciprocity meetings are scheduled at frequent intervals by licensing boards in most of the States to facilitate licensure and enable physicians to commence the practice of medicine without undue delay. Later in this study there is included a tabulation giving the schedules for all States. The publication of the dates of examination and reciprocity or endorsement meetings is a regular biweekly feature of the Journal.

The 8,501 examinees (table 3) included 6,254 graduates of approved medical schools in the United States, of whom 4.4 percent failed; 136 graduates of approved medical schools in Canada, 3.7 percent of whom failed; 2 graduates of a medical school in the United States that is now extinct, 1 of whom failed; 1,777 graduates of 199 faculties of medicine located in countries other than the United States and Canada, 41.4 percent of whom failed; 57 graduates of unapproved medical schools in the United States no longer in existence, of whom

75.4 percent failed; and 275 graduates of schools of osteopathy, of whom 15.3 percent failed.

As in table 1, the 8,501 physicians and others examined do not represent an equal number of persons, since a candidate tested in more than one State in a calendar year is counted in each State; however, if a candidate failed more than once in a given State within the year, he is counted in that State as a single failure.

TABLE 3.—*Source of candidates examined for licensure in the United States, 1955*

Medical schools	Number of schools	Number examined	Number passed	Number failed	Percent failed
Approved schools in United States	74	6,254	5,979	275	4.4
Approved in Canada	11	136	131	5	3.7
Extinct	1	2	1	1	50.0
Foreign	199	1,777	1,042	735	41.4
Unapproved schools	5	57	14	43	75.4
Schools of osteopathy	7	275	233	42	15.3
Total		8,501	7,400	1,101	12.9

53. Medical Education in the United States and Canada. Journal of the American Medical Association 161: 1664, August 25, 1956.

54. Medical Licensure Statistics for 1955. Journal of the American Medical Association 161: 363, May 26, 1956. Table 27 reproduced below.

SUMMARY COMPILED BY PUBLIC HEALTH SERVICE

The 10 States that do not grant licenses to physicians trained exclusively in foreign countries other than Canada are Arkansas, Idaho, Louisiana, Montana, Nevada, Oregon, South Carolina, Texas, Utah, and Wyoming.

The 21 States requiring United States citizenship for licensure are Alabama, Colorado, Delaware, Florida, Georgia, Kansas, Kentucky, Maine, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Hampshire, New Jersey, North Carolina, North Dakota, Ohio, Tennessee, Vermont, and West Virginia.

The 13 States requiring first papers for licensure are Arizona, Connecticut, Illinois, Iowa, Maryland, Massachusetts, New Mexico, New York, Pennsylvania, Rhode Island, South Dakota, Virginia, and Wisconsin.

The four States having no citizenship restrictions are California, Indiana, Oklahoma, and Washington.

TABLE 27.—*Status of requirements for medical licensure for physicians trained in foreign countries other than Canada* [1]

State	Written examination required	Admitted also on reciprocal basis	Citizenship	Basic science certificate	Internship in United States	Recognition limited to graduates of schools accepted by AMA and AAMC	Additional requirements	Exemptions	Examination fee
Alabama	X		X		X		X		$10
Arizona	X		(3)	X	X	X		X	25
Arkansas [2]									
California	X				X		X	X	25
Colorado	X		X	X	X	X	X		25
Connecticut	X	X	(3)	X					35
Delaware	X		X		X		X		25
District of Columbia	X	X		X	X	X		X	25
Florida	X		X	X		X			50
Georgia	X	X	X			X			20
Idaho [2]									
Illinois	X		(3)		X		X		15
Indiana	X						X		25
Iowa	X		(3)	X	X	X	X		25
Kansas	X	X	X		X			X	35
Kentucky	X		X		X		X		50
Louisiana [2]									
Maine	X		X		X				27
Maryland	X		(3)		X			X	25
Massachusetts	X		(3)					X	25
Michigan	X		X	X	X		X		50
Minnesota	X		X	X	X	X	X		25
Mississippi	X		X			X			10
Missouri	X		X		X				25
Montana [2]									
Nebraska	X		X	X		X			25
Nevada [2]									
New Hampshire	X	X	X		X			X	30
New Jersey	X	X	X		X		X	X	50
New Mexico	X		(3)	X		X			50
New York	X		(3)				X		40
North Carolina	X		X			X		X	50
North Dakota	X		X		X			X	25
Ohio	X		X					X	25
Oklahoma	X			X	X	X			25
Oregon [2]									
Pennsylvania	X		(3)		X	X		X	25
Rhode Island	X		(3)	X	X		X	X	20
South Carolina [2]									
South Dakota	X		(3)	X	X		X		20
Tennessee	X		X	X		X			35
Texas [2]									
Utah [2]									
Vermont	X		X		X		X		20
Virginia	X		(3)		X		X	X	25
Washington	X			X		X			25
West Virginia	X		X		X		X		25
Wisconsin	X	X	(3)	X	X	X	X		25
Wyoming [2]									
Alaska	X	X	X	X		X			25
Canal Zone [2]									
Guam	X	X			X	X			40
Hawaii	X		X		X	X		X	25
Puerto Rico [3]									
Virgin Islands	X				X	X	X		65

[1] Graduates of medical schools of Canada considered for licensure on the same basis as graduates of approved medical schools in United States provided they comply with regulations pertaining to citizenship and internship.

[2] 1st papers.

[3] Not accepted.

X Implies yes.

NOTE.—This summary should be supplemented by direct communication with the secretary of the licensing board of the State in which the physician is interested.

ADDITIONAL REQUIREMENTS

Alabama.—Candidate is eligible if he is certified by the National Board of Medical Examiners and approved.

California.—Applicant must present documentary evidence, satisfactory to the board, (a) of completion in a medical school or schools of a resident course of professional instruction equivalent to that given in an American school, (*b*) that he is in possession of a medical diploma, (*c*) that he has been admitted or licensed to practice medicine in the country wherein is located the institution in which he completed his training, and (*d*) that, if he is not a citizen of the United States, the country in which he has been licensed will admit to practice citizens of the United States. Applicants must pass a written, clinical, and oral examination. A 2-year internship is required of noncitizens.

Colorado.—Credentials must be submitted in original form and accompanied by translation and will be directly verified or documents should bear evidence of being visaed by the United States consul in the country wherein the school of graduation is or was located.

Delaware.—Residence for 1 year required. Completion of senior year in approved medical school in the United States.

Illinois.—Approved rotating internship in United States required. Limited license issued for practice in hospitals maintained by the State.

Indiana.—Shall be graduate of foreign medical school approved by Indiana board; in addition thereto, repeat the senior year in an approved medical school in the United States, or 2 years postgraduate work in approved hospitals in the United States.

Iowa.—Internship or 1 year in medical school in the United States.

Kentucky.—Applicant required to complete at least 5 years' training in the United States in an institution approved by the board and to have successfully passed examination of National Board of Medical Examiners.

Michigan.—Completion of senior year in approved medical school in the United States or Canada or master of science degree in any field allied with medicine from a graduate school affiliated with an approved medical school, or, in lieu of above, certificate of an oral comprehensive examination in the basic sciences and clinical medicine by a joint screening board of examiners from the faculties of the medical schools of the University of Michigan and Wayne University.

Minnesota.—Two year internship in Minnesota required. Credentials must be submitted in original form and accompanied by notarized photostatic copies translated and will be verified, and documents should bear evidence of being visaed by the United States consul in the country wherein the school is located.

New Jersey.—Original certificate covering medical courses, original diploma and license in foreign country with translation by the Lawyers' and Merchants' Translation Bureau, 11 Broadway, New York City.

Rhode Island.—Must pursue postgraduate study or serve additional 1 year internship or residency. After January 14, 1955, must serve approved rotating internship in Rhode Island. Applicant must be licensed to practice medicine and surgery in country in which school of graduation is located.

South Dakota.—Applicant required to practice in an emergency area for 4 years under a temporary license and reappear before the board for permanent licensure. After July 1, 1955, only those cleared through IRO will be eligible.

Vermont.—Must be diplomate of National Board of Medical Examiners.

Virginia.—Applicant must be licensed to practice medicine and surgery in country in which school of graduation is located, or must have completed the course of study and passed examinations equivalent to those required for a diploma or license conferring such full right to practice.

West Virginia.—Applicant must be resident of the State for 3 years preceding application and be recommended by local medical society.

Wisconsin.—1953 legislature established 1-year temporary educational permit, which authorizes graduates of unapproved foreign schools to obtain residency training in approved hospitals. May be renewed for 2 additional years.

Virgin Islands.—Residence of 6 months required.

EXEMPTIONS

District of Columbia.—Considered for reciprocal or endorsement registration on an individual basis.

Illinois.—Graduates of European medical colleges or universities after January 1, 1943, with the exception of certain approved colleges in the British Isles, Denmark, Holland, Norway, Sweden, and Switzerland, will not be accepted after July 1, 1954. However, graduates of such European medical colleges after January 1, 1943, may be considered providing they present diplomas of graduation from approved medical colleges in the United States after attendance in such colleges for at least 1 year, and, in addition, have served rotating internship of 1 year in an approved hospital in Illinois.

Kansas.—Applicant must be licensed to practice in country of graduation. Application must be filed 1 year in advance.

Maryland.—Graduates of recommended medical schools may be accepted after completion of 1 year of internship or residency in an approved hospital in the United States if their credentials have been approved and they have presented at least two letters from the medical authorities in the hospital recommending them as to their professional ability and moral character.

Graduates, not on the recommended list, who obtained the medical degree after January 1, 1940, are not eligible; must serve 3 years in hospitals in the United States and submit recommendations from the hospitals.

Graduates of foreign medical schools, before January 1, 1940, whose schools were known to have had acceptable standards at the time of graduation may be considered if credentials and professional experience in the United States are acceptable to the board.

Ability to write and speak English clearly is a primary requisite.

Massachusetts.—Graduates of foreign medical schools who matriculated in medical school prior to January 1, 1941, are eligible to apply for admission to the examinations. Graduates after January 1, 1941, must be graduates of a medical school approved by the Approving Authority for Colleges and Medical Schools of the Commonwealth of Massachusetts. The board has approved the School of Physic, Trinity College, Dublin, Ireland, and the University of London.

New Hampshire.—Diplomates of National Board of Medical Examiners eligible on reciprocity basis. Temporary license valid until citizenship is completed may be given. Considered on an individual basis.

New Jersey.—Internship completed in foreign countries after July 1, 1934, not acceptable. Acceptance limited to schools recognized by the board. Considered on an individual basis. After January 1, 1955, must have minimum of 3 years' training in a hospital approved by the board.

New York.—Considered on an individual basis.

North Carolina.—Considered on an individual basis.

North Dakota.—Not accepted unless certified by an American specialty board. Considered on an individual basis.

Ohio.—Graduates of schools of continental Europe after 1943 are eligible if on accepted list. If not licensed in a foreign country must have 1 year in hospital in the United States; if not on accepted list, 2 years of training in an approved hospital in the United States. Considered on individual basis.

Pennsylvania.—Medical schools in China and Japan not acceptable.

Rhode Island.—Matriculants in foreign medical faculties subsequent to January 1, 1949, not acceptable unless applicant was a legal resident of Rhode Island at the time of matriculation at a foreign medical school and obtained his preprofessional training in the United States or Canada.

Texas.—European graduates after 1939 limited to English-speaking schools.

Virginia.—Graduates of medical schools on accepted list admitted on same basis as approved medical schools in United States. Graduates of other schools having the required length of study and diploma required for practice in the country of their graduation, 2 years of internship in approved hospital in United States or Canada within past 5 years prior to application, or 1 year of study in an approved medical school in lieu of 1 year of the internship may be considered for examination. If United States citizenship has not been acquired in 7 years, license becomes invalid.

Hawaii.—Diplomates of National Board eligible on reciprocity basis.

55, 56. Deitrick, John E., and Berson, Robert C., Medical Schools in the United States at Mid-Century. New York, McGraw-Hill Book Co., Inc., 1953, pages 265, 274–285.

See also the annual Internship and Residency Numbers of the Journal of the American Medical Association.

57, 58. American Medical Association, Council on Medical Education and Hospitals. Essentials of an Approved Internship. Chicago, the Association, 1955. 27 pages.

American Medical Association, Council on Medical Education and Hospitals. Essentials of Approved Residencies and Fellowships. Chicago, the Association, 1954. 55 pages.

Reply to staff outline received from the American Hospital Association.

COMMENTS SUBMITTED BY KENNETH WILLIAMSON, DIRECTOR, WASHINGTON SERVICE BUREAU, AMERICAN HOSPITAL ASSOCIATION

With respect to the questions concerning internships and residencies, it is fallacious to conclude that the several thousand vacancies or unfilled internships and residencies denote an equal shortage of physicians. It is unlikely that some of the vacancies would be filled even were there to be additional personnel available. All internships and residencies are not of equal merit in terms of educational value, but they are a vital part of graduate medical education and should not be construed as service.

It must be understood that the demands upon hospital administrators and boards for the employment of alien interns and residents comes mainly from medical-staff members. Unless the services of such aliens are available, it means that the practicing physicians would be required to spend more of their time performing duties within the hospital and, therefore, would be less available to meet the needs of the public outside the hospital. The answer to your question* directly, we would think, is that there would be less care available to the total population since the practicing physicians must arrange to spend more time in the hospital providing the services that would otherwise be provided by such interns and residents.

To the degree that the graduates of American medical schools are not now sufficient in number to fill existing available positions for interns and residents, the elimination of foreign medical school graduates would only tend to increase the numbers of unfilled positions. However, we reiterate what has been previously stressed in this letter—that unfilled intern and resident positions is not a measure of the shortage of practicing physicians, rather they demonstrate an excess of acceptable educational opportunities.

*The question referred to was as follows: "What would be the effect on the provision of hospital services normally rendered in hospitals by interns and residents if a substantial number of the alien interns and residents now rendering these services were not available?"

59–63. Graduate Medical Education in the United States. Journal of the American Medical Association 162: 278, 280, September 22, 1956. See also question 69.

Data reproduced below compiled by Division of Public Health Methods, Public Health Service.

Number of hospitals approved for internships and number of interns, 1941–56

Year	Number of hospitals approved for internships	Internships		Number of graduates
		Total	Filled	
1940–41	735	8,182	7,553	5,275
1941–42	740	8,333	7,219	5,163
1942–43	760	8,180	6,200	5,233
1943–44	766	5,602	5,300	10,303
1944–45	785	8,429	5,600	5,136
1945–46	798	8,584	6,300	5,826
1946–47	764	8,539		6,389
1947–48	807	9,118		5,543
1948–49	807	9,124	7,248	5,094
1949–50	799	9,398	7,030	5,553
1950–51	828	10,044	6,821	6,185
1951–52	865	11,467	7,866	6,080
1952–53	856	11,006	7,645	6,668
1953–54	844	10,624	8,275	6,861
1954–55	850	11,048	9,066	6,977
1955–56	867	11,616	9,603	6,845

64–67. Graduate Medical Education in the United States, Journal of the American Medical Association 162:284. September 22, 1956. Data reproduced below compiled by Division of Public Health Methods, Public Health Service.

Number of hospitals approved for resident and fellowship training, 1941–56

Year	Number of hospitals approved for residencies	Residencies and fellowships		Percent vacant
		Total	Filled	
1940–41	616	5,233		
1941–42	632	5,298	4,100	22.5
1942–43	646	5,796	3,500	39.6
1943–44	675	5,393	4,500	16.6
1944–45	736	7,666		
1945–46	887	8,930		
1946–47	1,017	12,003		
1947–48	1,102	15,172		
1948–49	1,187	17,293		
1949–50	1,079	18,669	17,490	6.3
1950–51	1,120	19,464	14,595	25.0
1951–52	1,123	20,645	15,851	23.2
1952–53	1,131	22,292	16,867	24.3
1953–54	1,154	23,630	18,619	21.2
1954–55	1,181	25,486	20,494	19.6
1955–56	1,202	26,516	21,425	19.2

68. Medical Licensure Statistics for 1955, Journal of the American Medical Association 161: 359-362, May 26, 1956. Data reproduced below.

SUMMARY COMPILED BY PUBLIC HEALTH SERVICE

The eight States requiring licensure or a temporary registration for interns are: Georgia, Wyoming, Colorado, Delaware, Florida, Massachusetts, Virginia, and West Virginia.

The 31 States requiring licensure or a temporary registration for residents are: Arkansas, California, Connecticut, Georgia, Idaho, Illinois, Indiana, Iowa, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Mississippi, Nevada, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Texas, Virginia, Washington, Wisconsin, Wyoming, Colorado, Delaware, Florida, and West Virginia.

LICENSURE, REGISTRATION, OR OTHER REQUIREMENTS FOR INTERNS AND RESIDENTS SERVING IN HOSPITALS

In the majority of States, physicians serving internships are not required to be licensed in the State in which the hospital where they are interning is located. Georgia, Wyoming, and Puerto Rico have this requirement. New Jersey permits a service of 2 years without licensure and Florida a 3-year service before licensure. Indiana and South Carolina report that the intern must be eligible for licensure in the State. Colorado, Delaware, and Virginia require an intern to register with the board. In the District of Columbia the hospital must notify the Licensing Board when they employ an intern. Massachusetts permits limited registration for 1 year, renewable annually for a period not to exceed 5 years. In West Virginia graduates of foreign medical schools are required to obtain permission from the licensing board before commencing an internship in the State.

Twenty-seven boards require that physicians serving as residents in hospitals must be licensed in the State. In California the resident may serve 1 year without licensure. In Connecticut it is not a requirement of the licensing board but is customarily required by hospitals in that State, while Ohio reports that licensure is required if the resident assumes full responsibility and receives pay for services. Ten boards do not require full licensure of residents but issue certificates limited in nature, which may be called a limited license, a resident's license, temporary permit, or temporary license. In Massachusetts limited registration is granted. Colorado, Delaware, and Florida require the resident to register with the board for periods of 3 to 4 years without licensure. The District of Columbia specifies that the hospital must notify the Licensing Board when it employs a resident. New Jersey indicates that residents may serve 2 years without licensure, while in West Virginia graduates of foreign medical schools serving as residents must be licensed in the State.

The regulations of each of the licensing boards that exact some requirement of those engaged in intern or residency training are given in table 20.

TABLE 20.—*Licensure, registration, or other requirements for interns and residents serving in hospitals*

REQUIREMENTS FOR INTERNS

LICENSURE

Georgia	Wyoming	Puerto Rico

OTHER REQUIREMENTS

Colorado [1]	Florida [4]	New Jersey [7 8]
Delaware [2]	Indiana [5 3]	South Carolina [5 3]
District of Columbia [3]	Massachusetts [6]	Virginia [2]
		West Virginia [9]

[1] Registration with licensing board required annually not to exceed 4 years.
[2] Registration with licensing board required.
[3] Hospital must notify licensing board.
[4] Must register every 6 months with State board of health and may serve for 3 years without licensure.
[5] Must be eligible for licensure.
[6] Limited registration for 1 year, renewable annually for a period not to exceed 5 years.
[7] May serve 2 years without licensure.
[8] Editorial note: These States do not require a license for interns to practice medicine.
[9] Graduates of foreign medical schools required to obtain permission from licensing board.

REQUIREMENTS FOR RESIDENTS IN HOSPITALS

LICENSURE OR TEMPORARY REGISTRATION REQUIRED

Arkansas	Maine [5]	Oklahoma [13]
California [1]	Massachusetts [6]	Pennsylvania [13]
Connecticut [2]	Michigan [7]	South Carolina
Georgia	Minnesota	South Dakota
Idaho	Mississippi	Texas
Illinois [3]	Nevada [5]	Virginia [5]
Indiana	New York [9]	Washington
Iowa [4]	North Carolina [10]	Wisconsin
Louisiana	Ohio [11]	Wyoming
		Puerto Rico

OTHER REQUIREMENTS

Colorado [14]	District of Columbia [16]	New Jersey [18 19]
Delaware [15]	Florida [17]	West Virginia [20]

[1] May serve 1 year without licensure.
[2] May be required by hospitals.
[3] Limited license for employment as residents in hospitals maintained by the State. Temporary certificate for residency or specialty training for noncitizens in approved Illinois hospitals.
[4] Resident's license issued for 1 year and may be renewed for an additional 3 years.
[5] Temporary license granted.
[6] Limited registration granted.
[7] Temporary licensure for graduate training.
[8] Temporary permit for one year.
[9] Temporary certificate for residents in approved hospitals to those eligible for licensure.
[10] Limited license issued.
[11] If a resident assumes full responsibility and receives pay for services.
[13] Temporary licensure for 1 year, renewable for 2 additional years.
[13] Temporary certificate for residency training in approved hospitals in the State, renewable annually.
[14] Registration with licensing board required annually not to exceed 4 years.
[15] Registration with licensing board required.
[16] Hospital must notify licensing board.
[17] Must register with State board of health every six months and may serve residency for three years without licensure.
[18] May serve 2 years without licensure.
[19] Editorial note: This State does not require a license for residents to practice medicine.
[20] Graduates of foreign medical schools required to be licensed.

TEMPORARY AND EDUCATIONAL PERMITS, LIMITED AND TEMPORARY LICENSES, OR OTHER CERTIFICATES ISSUED BY MEDICAL LICENSING BOARDS

Thirty-one medical licensing boards make provision for the issuance of temporary and educational permits, limited and temporary licenses, or other certificates in lieu of regular medical licensure for the practice of medicine. The regulations for the issuance of such certificates vary. This limited registration may apply to hospital training, to those ineligible for licensure who seek further educational training, for emergency medical practice, or for regular practice until the next meeting of the board for the issuance of licenses. These States, and the length of validity of this special registration are shown in table 21.

TABLE 21.—*Temporary and educational permits, limited and temporary licenses, or other certificates issued by State licensing boards*

Arizona	Temporary permits issued in emergency (inability of the local physicians and surgeons in any community to meet conditions affecting the public health that may arise suddenly and unexpectedly by reason of fire, flood, explosion, epidemic, pestilence, or like disaster, or through some unusual occurrence or condition which in the judgment of a majority of the board, constitutes an emergency).
Connecticut	Educational permits for graduates of foreign medical schools not licensed to practice.
Delaware	Locum tenens; emergency.
Georgia	Temporary permits until board meets.
Idaho	To candidates holding certificates of the National Board of Medical Examiners or licensed by written examination in another State until next meeting of board.
Illinois	Temporary certificates for specialty study or residency in Illinois hospitals for noncitizens who do not expect to remain in Illinois. Limited licenses for employment as residents in hospitals maintained by the State.
Indiana	Temporary license only pending next examination, if not eligible for endorsement.
Iowa	Resident license valid for 1 year and renewable for 3 additional years.
Kansas	Temporary permits and fellowships. Temporary permits to allow practice during intervening period until action of the board on application through endorsement. Fellowships restricted to State institutions and State hospitals. Doctor holding fellowship works under direction of the head of the institution.
Kentucky	Temporary and limited. Temporary permits serve applicants by endorsement until investigation completed and meeting of board. Limited licenses are for special place and purpose.
Louisiana	Temporary permit is granted to physicians possessing the necessary credentials who file applications for examination or reciprocity and who locate in Louisiana in between the regular semiannual examination meetings of the board. Temporary permit valid until the next meeting of the board.
Maine	Temporary licenses granted for residency training for 1 year and to camp physicians for 10 weeks.
Michigan	Temporary license for training program.
Mississippi	Temporary permit for practice until next board meeting.
Nevada	Temporary permit granted for 1 year for residency training within a specific Nevada hospital.
New Hampshire	Temporary permit for locum tenens, emergencies, etc. Time varies.

TABLE 21.—*Temporary and educational permits, limited and temporary licenses, or other certificates issued by State licensing boards*—Continued

New Jersey	Temporary licenses issued for not less than 2 weeks or more than 4 months.
New Mexico	Temporary permit for practice until next board meeting. Special permit confined to institutional practice.
New York	Temporary certificate for residency training for those eligible for examination.
North Carolina	Limited licenses issued for duration of residency.
Oklahoma	Temporary licenses issued for residency training only.
Pennsylvania	Temporary certificates are issued for residency training.
South Dakota	Temporary license issued only for graduates of foreign schools.
Texas	Temporary permit issued until next board meeting.
Virginia	Temporary permit issued until next board meeting and for service as a hospital resident.
West Virginia	Temporary permit issued until next board meeting to qualified applicants.
Wisconsin	Temporary permit for foreign students whose schools are not recognized by this board of licensure.
Alaska	Temporary permits issued while processing permanent licensure, to summer cannery physicians and to physicians in the Armed Forces on short tours of duty, valid for 6 months, renewable an additional 6 months.
Guam	Restrictive certificates to permit medical employees of Federal contractors to practice in the discharge of their official duties.
Puerto Rico	Provisional license pending permanent licensure granted foreign-trained physicians to work on charity services.
Virgin Islands	Temporary certificates issued to military service personnel on duty and to municipal personnel until next license examination.

69–74. Office of Defense Mobilization. Unpublished data from study of alien physicians (immigrant and nonimmigrant).

COMMENTS SUBMITTED BY KENNETH WILLIAMSON, DIRECTOR, WASHINGTON SERVICE BUREAU, AMERICAN HOSPITAL ASSOCIATION

The whole subject of the flow of foreign physicians into this country is of utmost importance, and as you know, this is being studied very carefully at the present time. It seems obvious that there is a demand for such physicians to fill positions which are vacant in hospitals. (See questions 57, 58 for additional comments.)

75. McCormack, James E., and Feraru, Arthur. Alien Interns and Residents in the United States, 1955–56. Journal of the American Medical Association 161: 323, May 26, 1956. [Study of nonimmigrant physicians.]

Table 2 of that article reproduced below.

Alien physicians training in approved hospitals in the United States, 1955–56, by place of origin

Place of origin:	No.
Albania	1
Argentina	121
Australia	35
Austria	54
Belgium	23
Bolivia	6
Brazil	97
British Borneo	1
British Guiana	4
Burma	3
Canada	584
Ceylon	1
Chile	8
China	163
Colombia	99
Costa Rica	11
Cuba	147
Cyprus	14
Denmark	3
Dominican Republic	84
Ecuador	33
Egypt	38
El Salvador	9
Federation of Malaya	1
Finland	4
France	20
French Morocco	4
Germany	364
Gibraltar	1
Greece	232
Guatemala	13
Haiti	26
Honduras	12
Iceland	11
India	208
Indonesia	3
Iran	136
Iraq	36
Ireland	49
Israel	38
Italy	260
Jamaica	17
Japan	190
Jordan	7
Kenya	1
Korea	216
Kuwait	1
Lebanon	67
Liberia	1
Lithuania	2
Luxembourg	5
Martinique	1
Mexico	489
Netherlands	69
Netherlands West Indies	1
New Zealand	6
Nicaragua	25
Nigeria	1
Norway	11
Pakistan	10
Panama	14
Paraguay	8
Peru	89
Philippine Islands	1,065
Poland	6
Portugal	27
Romania	5
Ryukyu Islands	1
Saar	2
South America (undesignated)	2
Southern Rhodesia	2
Spain	116
Spanish Morocco	1
Sweden	4
Switzerland	60
Syria	25
Thailand	47
Togoland (French)	2
Trinidad and Tobago	6
Turkey	320
Union of South Africa	18
United Kingdom	110
Uruguay	1
Venezuela	16
Yugoslavia	5
Stateless	4
Total	6,033

76. Medical Licensure Statistics for 1955. Journal of the American Medical Association 161: 359, May 26, 1956. See question 68.

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77. Report of the Council on Medical Education and Hospitals. Journal of the American Medical Association 161: 159, May 12, 1956. See also question 79.

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78. Rappleye, Willard C., Medical Education on the Move. Excerpts from the Report of the Dean of the Faculty of Medicine of Columbia University for the Academic Year Ending June 30, 1956, page 5.

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79. Medical Education in the United States and Canada. Journal of the American Medical Association 161: 1661–1663, August 25, 1956. Reproduced below.

Foreign Medical Schools and Students

EVALUATION OF FOREIGN-TRAINED PHYSICIANS

Since 1950, the Council on Medical Education and Hospitals in collaboration with the Association of American Medical Colleges has maintained a listing of some 50 foreign medical schools whose graduates the 2 groups have recommended to be considered on a comparable basis with graduates of our own approved schools. This listing was designed primarily to be of assistance to licensing boards in their dealings with foreign-trained physicians seeking licensure. The listing was always qualified to the effect that it was tentative and not complete so that foreign schools not so listed were neither approved nor disapproved and that graduates of unlisted schools should be evaluated on an individual basis by the licensing agencies, hospitals, and other organizations concerned.

Foreign medical schools were included in the listing solely upon information furnished by recognized American medical educators who were able to visit the schools during their travels abroad. This method of evaluation necessarily excluded from this recommendation those individuals who were graduates of schools offering sound education in medicine at the time of graduation but whose programs had deteriorated during or after the last world war. The method also could automatically bring the benefit of the recommendation to older physicians who graduated from a foreign medical school at a time when the educational program was weak, provided that the program had been sufficiently strengthened by the time of the visit of the American medical educator.

Up to the current moment, almost one-quarter of licensing boards continue to not accept for examination any foreign-trained physicians. More than one-quarter of the licensing boards will accept for examination only those foreign-trained physicians who are graduates of the medical schools incorporated in this listing. Thus for more than half of all State medical examining boards, the listing has either been of

no use or has lent itself to an unintended use. During the first 5 years of the existence of the listing a relatively greater percentage (68 percent) of graduates of listed schools passed licensure examination than did graduates of unlisted schools (46 percent). However, because of the greater number of graduates of unlisted schools that were examined, 75 percent of the total number of foreign graduates who passed licensure examinations during this period were from unlisted schools.

At the time the listing of foreign medical schools was first formulated, the major problem it was designed to alleviate was related to providing educational evaluation for foreign-trained physicians coming to the United States as permanent immigrants. Although this problem still exists and is augmented by the beginning return of American citizens who have studied medicine abroad, the ever-increasing educational exchange programs have shifted the major emphasis. Currently, the vast majority of foreign-trained physicians entering the United States do so under an exchange program seeking further training as interns or residents under temporary visas. Most of the physicians in this category are from unlisted schools.

Hospitals in the United States have not had available any adequate mechanism for evaluating the medical qualification of such physicians they have accepted as house officers. This has led to many unfortunate experiences and disappointments to both the hospitals and the physicians.

These are but some of the many reasons that led to the conviction that the listing of certain foreign medical schools with the recommendation that their graduates be considered on a basis comparable to graduates of our own schools was neither an adequate nor an equitable solution to their problem. This conviction of the need for a new approach resulted in the formation approximately 2 years ago of the Cooperating Committee on Graduates of Foreign Medical Schools with participating representatives of the Council on Medical Education and Hospitals, the Federation of State Medical Examining Boards, the American Hospital Association, and the Association of American Medical Colleges.

The following principles gave guidance and direction to the cooperating committee in its considerations. It is believed that these principles should similarly give guidance in the administration of the program.

1. Although the responsibility to share educational opportunities in medicine is recognized, the primary concern must be for the health care of the American public. Thus, before assuming responsibility for the care of patients as interns or residents, all graduates of foreign medical schools (immigrants, exchange students, and American graduates of foreign medical schools) should give evidence, as nearly as can be measured, of having reached a level of educational attainment comparable to that of students in American schools at the time of graduation.

2. The primary objective of this committee is to devise an effective mechanism for measuring educational attainment in the absence of intimate and continuing knowledge of the educational background of foreign-trained physicians. This mechanism should provide hospitals with pertinent information regarding the medical qualifications of foreign-trained physicians seeking position as interns or residents. It should not interfere with the hospital's privilege of making its own

selection among qualified physicians. It should not serve as a substitute for or interfere with the normal licensure procedures of the various State boards, although the program may be helpful to the boards.

3. It is not intended that this mechanism be applicable to those foreign medical school graduates in the United States as temporary students participating in programs of medical and related studies in recognized universities, medical schools, and postgraduate schools, who by the very nature of their study are not involved in the responsibility of patient care.

It is the belief of the cooperating committee that implementation of its proposed program will afford hospitals needed assurance in regard to the medical qualifications of foreign-trained physicians seeking positions as interns and residents. This program represents an extension to foreign graduates of the same principle that has proved its value and long been in effect for American graduates.

PROPOSED PROGRAM

The emphasis in this program is placed on evaluating the medical qualifications of the individual foreign-trained physician who wishes to come to the United States, rather than attempting to evaluate on a continuing basis the educational programs of the hundreds of foreign medical schools that serve as potential sources of these foreign-trained physicians.

The program is designed to establish two principal criteria in regard to each such foreign-trained physician: (1) that he is a graduate of a bona fide medical school and (2) that, as nearly as can be measured, he has reached a level of educational attainment comparable to that of students in American schools at the time of graduation. These criteria are to be established by evaluation of the foreign-trained physician's medical credentials in view of predetermined minimal standards and by examination of the foreign-trained physician for factual knowledge of medicine.

EVALUATION OF MEDICAL CREDENTIALS

The basic requirements listed below must be met in order for the foreign-trained physician's credentials to be considered satisfactory. As evidence of fulfillment of these requirements, the candidate should present medical credentials in original form with an acceptable English translation. These credentials together with the bona fide status of the medical school should be verified by the American consul in the country in which the school of graduation is located.

BASIC REQUIREMENTS

1. A minimum of 18 years of total formal education.

2. Included in this minimum of 18 years of total formal education should be a minimum of 32 months of attendance and direct study of medicine, excluding any time devoted to what in the United States would be considered as premedical study or internship.

3. In any country where the minimum standards stated above do not constitute sufficient educational achievement to acquire licensure in that country, the latter rather than the minimum previously de-

scribed would be required. Although it would be expected that licensure would be achieved in the country in which is located the school of graduation, under exceptional circumstances such licensure would not be demanded if the candidate had fulfilled all of the educational requirements for licensure.

4. Evidence of satisfactory completion of the above-described courses of study.

5. As evidence of acceptable moral and ethical behavior, each candidate must present a properly executed affidavit that he has not been convicted of any crime involving moral turpitude and that he has never been censored or had other punitive action taken against him by any recognized medical body including licensing agencies for reasons of immoral conduct.

EXAMINATION FOR FACTUAL KNOWLEDGE IN MEDICINE

The objectives that this program is designed to fulfill dictated certain factors that had to be considered in determining the nature of the examination.

1. An acceptable examination must be a valid test of the foreign physician's factual knowledge in medicine. The examination must also give sufficient insight into the applicant's ability to approach rationally a clinical problem and follow it through to a logical conclusion as the result of application of basic medical concepts rather than empiric knowledge.

2. Since applicants to this evaluation service are to be measured in comparison to the performance of graduates of American medical schools, the examination must lend itself to such a comparison.

3. If this program is widely accepted, as the committee is confident it will be, foreign-trained physicians seeking further training in the United States will not be able to find positions offering such experience until they have successfully completed all phases of the program. Those physicians seeking further training in the United States cannot obtain a student visa until they have already received a position offering this additional training. It therefore is necessary that the examination be conducted abroad as well as in the United States. Under these circumstances it is then also most advisable that the administration of the examination require minimal supervision.

4. The costs of preparation and administration of the examination must not be prohibitive.

On the basis of advice from consultants experienced in educational testing, the cooperating committee concluded that an objective-type examination of approximately 400 properly selected test items would provide for purposes of this program a valid measure of medical knowledge. A significant number of these items should consist of case presentations with multiple questions based on them to determine the applicant's ability to interpret symptoms, signs, and basic laboratory data in arriving at accurate diagnosis and rational therapy. Such an examination could be given in a single day, divided into a morning and afternoon session.

Utilization of the objective multiple-choice examination presents many advantages. Perhaps most important among these for the purposes of this program is that such an examination lends itself to rapid, accurate, impartial machine scoring and thorough statistical analysis, thus providing a sound basis for many comparative studies.

Another important advantage of this type of testing is that the administration of it is not complex and only minimal supervision is necessary so that it could be given abroad.

One of the important problems that has been encountered with graduates of foreign medical schools who have taken further training in hospitals in the United States has been their lack of satisfactory command of English. Inability to communicate well with colleagues, staff physicians, and patients can readily lead to disastrous accidents in patient care. Furthermore, it is highly unlikely that any effective learning can occur without easy intercommunication between student and teacher. Facility with English is to be one of the requirements for participation in this program and will be one of the factors measured.

Successful completion of all phases of this evaluation program would result in certification of this achievement to hospitals and other interested organizations with the approval of the foreign-trained physician concerned.

CURRENT STATUS OF EVALUATION SERVICE

The four parent organizations of the cooperating committee have all endorsed this program. An organization to be entitled "Evaluation Service for Foreign Medical Graduates" is now in the process of formation to complete the necessary administrative planning. It is hoped that this service will be available to evaluate foreign-trained physicians by the summer of 1957. Each of the parent groups have named two representatives who will compose the board of trustees of this new organization and who will be responsible for the management of its property, business, and affairs. At the time this new program becomes an effective working mechanism, it is anticipated that the current listing of certain foreign medical schools will be abandoned.

80–82. American Medical Association, American Medical Directory, 1956, Chicago, The Association, 1956, p. 12. United States Bureau of the Census, Census of Population, 1950, vol. 2, part 1. Washington, D. C., Government Printing Office, 1953. Table 2. United States Bureau of the Census, Current Population Reports, Series P–25, No. 144. Data reproduced below compiled by Division of Public Health Methods, Public Health Service.

Trend in physicians, 1910–55

Year	Number of physicians [1]	Number of physicians per 100,000 population
1910	135,000	146
1920	144,977	136
1930	153,803	125
1940	175,163	133
1950	204,359	135
1955	218,061	133

[1] Data from the American Medical Directories, interpolated for the years 1920, 1930, and 1950. Includes retired physicians, excludes graduates of the years concerned.

Physicians by type of practice	1955
Total number	218,061
In private practice	152,305
In general practice	64,716
In general practice with some specialization	20,475
Practice limited to a specialty	67,114
Not in private practice	65,756
Hospital interns, residents, administrators	33,973
Federal Government service	13,518
Full-time research, teaching, public health	6,636
Retired, not in practice	11,629

Source: American Medical Directory, 1956, table 3.

Data reproduced below from Mobilization and Health Manpower, Report to the Director of the Office of Defense Mobilization by the Health Resources Advisory Committee, 1955.

PHYSICIANS, 1954

There are now in the United States approximately 215,000 physicians. These physicians are engaged in a wide variety of activities. Although exact figures are not available, they are found in major fields of service in approximately the following numbers:

Total	215,000
Private practice	139,000
Interns and residents (in non-Federal hospitals)	[1] 20,300
Mental and tuberculosis hospital staffs	3,000
Medical school faculties	[2] 5,300
Industrial medicine	[2] 2,000
State and local health departments	2,000
Armed Forces	11,300
Public Health Service	1,400
Veterans Administration	[2] 6,000
Insurance and miscellaneous	1,700
Retired and not in practice	[3] 23,000

[1] There are in addition some 5,500 aliens serving on hospital house staffs most of whom are here only for temporary training.
[2] Full-time equivalents.
[3] This number is estimated as being equal to ¾ of those over age 65. (See Cicero, Antonio, Davis, Burnet M., and Altman, Isidore, Measures of Medical Resources and Requirements, Medical Care, vol. 3, No. 4, November 1943.)

Physicians and other health resources are distributed quite unevenly throughout the United States in relation to population. As the President pointed out in his health message in January 1954: "There are, for example, 159 practicing physicians for every 100,000 of the civilian population in the Northeast United States. This is to be contrasted with 126 physicians in the West, 116 in the North Central area, and 92 in the South."

The variation among the States in the supply of physicians is shown in the following map.

The past few years have seen a significant increase in the number of physicians. This increase is being offset, however, by the rapid increases which are taking place in our population.

As the following table indicates, the gross ratio of physicians to population is now 1.32 per 1,000, and the net ratio (active physicians only) is now 1.18, both slightly lower than just before World War II.

Chart 1

State Variation in the Relative Supply of Physicians

Source: 1950 American Medical Association Directory and Bureau of the Census.

Supply of physicians in relation to population of the United States, selected years, 1941–54

Year	Population including Armed Forces overseas	Physicians		Physicians per 1,000 population	
		Total [1]	Active [2]	Total [1]	Active [2]
1941	133,203,000	181,000	166,000	1.36	1.25
1945	139,586,000	193,000	174,000	1.38	1.25
1950	151,677,000	208,000	185,000	1.37	1.22
1954	162,400,000	215,000	192,000	1.32	1.18

[1] Exclusive of graduates of same year.
[2] Full-time equivalents.

The net ratio of active physicians has dropped somewhat further than the total, since an increasing proportion of physicians is in the age group over 65.

In response to the added demands for physicians, medical schools have expanded their output significantly. In 1940, medical schools had 5,100 graduates; by 1954 the annual output has reached 6,800—an increase of 33 percent. This has come about both through the increase in the number of schools and enrollments.

The present outlook is for a continuing gradual increase, with an annual output of about 7,000 by 1960.

It is estimated that the total population will reach 177 million by 1960. The net effect of this rapid increase is that our overall physician-population ratios in 1960, despite the increase in the output of physicians, will be almost what it was before Korea. The overall 1960 gross ratio can be expected to be about 133 physicians per 100,000 population, as compared to 137 in 1950.

83. New licentiates, total—Medical Licensure Statistics for 1955. Journal of the American Medical Association 161: 357, May 26, 1956; deaths, total—Medical Licensure Statistics for 1955, page 351 and previous reports; net gain—based on new licentiates minus deaths; new licentiates, foreign-trained—Medical Licensure Statistics for 1955, page 372.

Data compiled by Division of Public Health Methods, Public Health Service, reproduced below.

Gains and losses to medical profession in the United States and possessions: 1935–55

Year	Graduates of approved United States medical schools	Licentiates representing additions to the profession		Deaths	Net gain
		Total	Foreign-trained		
1935	5,101	5,510	----	3,319	2,191
1936	5,183	6,177	----	3,475	2,702
1937	5,377	6,424	----	3,277	3,147
1938	5,194	6,260	----	3,630	2,630
1939	5,089	6,044	----	3,710	2,334
1940	5,097	5,887	----	3,450	2,437
1941	5,275	5,715	----	3,460	2,255
1942	5,163	6,014	----	3,353	2,661
1943	5,223	5,958	----	3,393	2,565
1944	10,303	6,965	----	3,415	3,550
1945	5,136	5,748	----	4,015	1,733
1946	5,826	6,970	----	3,512	3,458
1947	6,389	6,890	----	3,568	3,322
1948	5,543	6,636	----	3,230	3,406
1949	5,094	5,876	----	3,600	2,276
1950	5,553	5,002	308	3,794	2,208
1951	6,135	6,273	450	3,700	2,573
1952	6,080	6,885	569	3,829	3,056
1953	6,668	7,276	685	3,421	3,855
1954	6,861	7,917	772	3,667	4,250
1955	6,977	7,737	907	4,000	3,737

Gains and losses to the medical profession in the United States and its dependencies

Item	Average annual numbers for period			
	1935–39	1940–49	1950–54	1955
Licentiates representing additions to the profession	6,100	6,300	6,900	7,700
United States and Canadian schools	5,200	5,900	6,300	6,800
Foreign schools	900	400	600	900
Deaths among those in the profession	3,500	3,500	[1] 3,900	4,000
Net gain	2,600	2,800	3,000	3,700

[1] Adjusted to conform to the difference in the total number of physicians listed in the 1950 and 1956 American Medical Directories.

Reply and staff outline received from American Medical Association.

Net Increment in Relation to Population

In the table below, for the last 6-year period for which data are available, is given the additions to the United States medical profession from approved medical schools in the United States and Canada and also the additions from foreign medical schools excluding Canada. Canadian schools are subject to the same periodic survey by the same accrediting group (Council on Medical Education and Hospitals of the American Medical Association and the Association of American Medical Colleges) as are United States medical schools and are for this reason considered in the same category.

Data on deaths of licensed physicians were only accurate enough to use to the nearest hundred. United States population figures utilized were from the Bureau of the Census and represent the resident population, excluding members of the Armed Forces overseas.

Net increment of licensed physicians to United States population

Year	Additions to licensed profession		Total	Deaths	Net gain	Gain per 100,000 population
	United States and Canadian schools	Foreign schools				
1950	5,694	308	6,002	3,800	2,202	1.46
1951	5,823	450	6,273	3,700	2,573	1.68
1952	6,316	569	6,885	3,800	3,085	1.98
1953	6,591	685	7,276	3,400	3,876	2.45
1954	7,145	772	7,917	3,700	4,217	2.62
1955	6,830	907	7,737	4,000	3,737	2.27

84, 85. Medical Licensure Statistics for 1955, Journal of the American Medical Association 161: 371–372, May 26, 1956. See also question 83.

Reply to staff outline received from American Medical Association.

Licensure of Graduates of Foreign Medical Schools

The table below, reproduced from the Council on Medical Education and Hospitals annual report on Medical Licensure Statistics (JAMA 161: 339–382, May 26, 1956), indicates the numbers of graduates of foreign medical schools who represented additions to the United States medical profession in the 6-year period 1950–55, inclusive. It is to be noted that this table does not include graduates of Canadian schools.

Additions to the medical profession representing graduates of foreign medical faculties, 1950–55

Year	Examination	Reciprocity and endorsement	Total
1950	267	41	308
1951	425	25	450
1952	545	24	569
1953	662	23	685
1954	749	23	772
1955	881	26	907
Total	3,529	162	3,691

NOTE.—Approximately 250–300 of the total of 3,691 foreign graduates are United States citizens returning after acquiring a medical education abroad.

Prepared by Statistics Branch, Administrative Division, Immigration and Naturalization Service, United States Department of Justice.

Physicians and surgeons admitted to the United States as immigrant aliens, years ended June 30, 1901–55

Year:	*Number*	Year:	*Number*
1901	100	1929	398
1902	116	1930	390
1903	343	1931	329
1904	907	1932	259
1905	1,043	1933	187
1906	725	1934	353
1907	480	1935	304
1908	504	1936	462
1909	332	1937	533
1910	365	1938	738
1911	429	1939	1,384
1912	459	1940	1,095
1913	508	1941	706
1914	504	1942	290
1915	476	1943	218
1916	326	1944	156
1917	326	1945	[1]
1918	182	1946	[1]
1919	236	1947	[1]
1920	459	1948	[1]
1921	597	1949	1,148
1922	458	1950	1,848
1923	704	1951	1,387
1924	1,391	1952	1,210
1925	540	1953	845
1926	487	1954	1,040
1927	486	1955	1,046
1928	454		

[1] Figures not available.

86, 87. Medical Licensure Statistics for 1955. Journal of the American Medical Association, 161: 371–372, May 26, 1956; and Medical Education in the United States and Canada. Journal of the American Medical Association, 161: 1640–41, August 25, 1956.

(See questions 1–2 for size of graduating classes.)

Tables 30 and 31 reproduced below from Medical Licensure Statistics for 1955.

TABLE 30.—*Foreign-trained physicians licensed by State boards, 1946–55*

	Examination							Endorsement							Grand total
	1946–50	1951	1952	1953	1954	1955	Total	1946–50	1951	1952	1953	1954	1955	Total	
Alabama	1	0	2	1	2	1	7	1	1	1	0	0	0	3	10
Arizona	0	1	1	1	0	2	5	4	0	0	0	1	4	9	14
Arkansas	1	0	0	0	0	0	1	1	0	0	0	0	1	2	3
California	135	56	98	95	83	135	602	47	1	1	0	1	0	50	652
Colorado	35	3	1	1	1	3	44	0	0	0	0	0	0	0	44
Connecticut	27	13	7	21	13	13	94	58	6	4	9	19	23	119	213
Delaware	0	1	2	1	1	1	6	2	1	2	0	3	0	8	14
District of Columbia	17	6	2	2	6	2	35	40	8	4	6	14	10	82	117
Florida	27	8	14	11	13	27	100	0	0	0	0	0	0	0	100
Georgia	7	4	2	6	6	2	27	3	1	1	2	3	3	13	40
Idaho	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Illinois	142	92	153	208	216	157	968	0	0	0	0	3	0	3	971
Indiana	3	0	0	0	20	2	25	4	1	2	0	16	4	27	52
Iowa	3	1	3	10	5	4	26	21	1	5	3	2	1	33	59
Kansas	4	0	1	0	1	3	9	0	0	0	0	0	0	0	9
Kentucky	1	0	0	0	0	0	1	1	1	0	0	1	0	3	4
Louisiana	0	0	0	1	3	1	5	0	0	0	0	0	0	0	5
Maine	11	0	4	13	16	44	88	5	2	3	2	7	6	25	113
Maryland	55	18	31	30	44	55	233	6	0	0	0	1	0	7	240
Massachusetts	32	6	10	10	7	11	76	5	2	1	1	4	2	15	91
Michigan	2	4	10	15	25	40	96	5	0	1	5	7	17	35	131
Minnesota	10	7	10	23	17	17	84	0	0	0	0	0	0	0	84
Mississippi	5	1	1	0	1	2	10	2	0	0	0	0	0	2	12
Missouri	23	8	5	3	4	14	57	2	3	0	0	1	0	6	63
Montana	0	1	0	0	0	0	1	0	1	1	0	1	0	3	4
Nebraska	3	0	0	0	0	0	3	6	0	0	1	1	0	8	11
Nevada	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
New Hampshire	5	0	2	1	4	3	15	14	4	1	1	6	3	29	44
New Jersey	25	7	3	6	19	23	83	133	16	21	25	24	22	241	324
New Mexico	1	0	1	0	3	4	9	10	1	1	4	1	1	18	27
New York	722	192	171	172	184	159	1,600	183	18	31	15	8	7	262	1,862
North Carolina	6	1	4	11	8	0	30	2	0	1	2	1	2	8	38
North Dakota	10	8	6	1	0	5	30	0	0	0	0	0	0	0	30
Ohio	45	46	34	66	117	160	468	102	27	23	36	48	47	283	751
Oklahoma	1	1	0	0	0	0	2	1	1	0	1	1	1	5	7
Oregon	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1
Pennsylvania	26	3	6	7	12	6	60	0	0	0	0	0	0	0	60
Rhode Island	13	7	23	26	34	35	138	1	0	1	0	1	1	4	142
South Carolina	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1
South Dakota	9	3	5	1	2	4	24	1	0	0	0	0	0	1	25
Tennessee	5	0	1	0	1	0	7	0	2	0	1	0	0	3	10
Texas	22	4	6	18	14	16	80	27	1	0	0	0	3	31	111
Utah	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vermont	1	0	0	0	0	0	1	2	1	0	0	2	3	8	9
Virginia	7	10	8	14	23	54	116	12	1	3	0	0	0	16	132
Washington	14	1	4	2	5	5	31	4	2	3	4	4	6	23	54
West Virginia	0	4	1	4	1	0	10	0	0	0	0	0	0	0	10
Wisconsin	0	2	3	1	3	2	11	2	1	1	0	3	1	8	19
Wyoming	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2
United States possessions and Territories	22	5	13	13	29	30	122	14	4	3	3	3	0	27	149
Total	1,489	524	648	796	943	1,042	5,442	723	108	115	121	188	168	1,423	6,865

TABLE 31.—*Graduates of foreign medical faculties representing additions to the medical profession, 1955*

State	Examination	Reciprocity and endorsement	Total	State	Examination	Reciprocity and endorsement	Total
Alabama	1	0	1	New Hampshire	2	0	2
California	121	0	121	New Jersey	24	0	24
Colorado	2	0	2	New Mexico	3	0	3
Connecticut	13	4	17	New York	131	4	135
Delaware	1	0	1	North Dakota	1	0	1
District of Columbia	0	8	8	Ohio	151	3	154
Florida	9	0	9	Pennsylvania	4	0	4
Georgia	2	0	2	Rhode Island	27	0	27
Illinois	145	0	145	South Dakota	1	0	1
Indiana	1	0	1	Texas	8	0	8
Iowa	5	0	5	Virginia	42	0	42
Kansas	2	0	2	Washington	4	3	7
Maine	44	2	46	Wisconsin	2	0	2
Maryland	33	0	33	Alaska	2	0	2
Massachusetts	5	1	6	Puerto Rico	27	0	27
Michigan	43	1	44	Virgin Islands	1	0	1
Minnesota	17	0	17				
Mississippi	2	0	2	Total	881	26	907
Missouri	5	0	5				

88. American Medical Association. American Medical Directory, 1956. Chicago, The Association, 1956, p. 12; United States Bureau of the Census, Current Population Reports, Series P–25, No. 129. Data computed by Division of Public Health Methods, Public Health Service, reproduced below.

Total number of physicians and physician-population ratios for each region and State, 1955

Region and State	Number of physicians	Rate per 100,000 population	Region and State	Number of physicians	Rate per 100,000 population
United States	[1] 218,061	[1] 133	Minnesota	4,440	140
			Mississippi	1,562	74
Northeast	68,438	160	Missouri	4,902	119
North Central	56,682	117	Montana	621	98
South	51,749	103	Nebraska	1,581	114
West	32,840	142	Nevada	228	101
			New Hampshire	752	135
Alabama	2,321	77	New Jersey	6,737	124
Arizona	1,018	104	New Mexico	632	79
Arkansas	1,626	91	New York	31,146	193
California	20,763	159	North Carolina	3,913	91
Colorado	2,385	154	North Dakota	494	77
Connecticut	3,777	169	Ohio	10,873	121
Delaware	509	132	Oklahoma	2,226	103
District of Columbia	2,483	291	Oregon	2,098	126
Florida	4,530	131	Pennsylvania	14,727	132
Georgia	3,391	94	Rhode Island	1,036	123
Idaho	568	93	South Carolina	1,741	76
Illinois	12,529	134	South Dakota	534	79
Indiana	4,420	102	Tennessee	3,535	103
Iowa	2,829	105	Texas	8,750	102
Kansas	2,254	109	Utah	1,026	131
Kentucky	2,638	88	Vermont	563	149
Louisiana	3,292	112	Virginia	3,652	102
Maine	985	109	Washington	3,238	126
Maryland	3,884	160	West Virginia	1,696	85
Massachusetts	8,715	174	Wisconsin	3,926	106
Michigan	7,900	109	Wyoming	263	86

[1] Includes 8,352 physicians not allocated to States—those on active duty with Regular Army, Navy, U. S. Public Health Service, Veterans' Administration, and Indian Service.

Physicians per 100,000 population and State personal income, percent each State of United States average, 1955

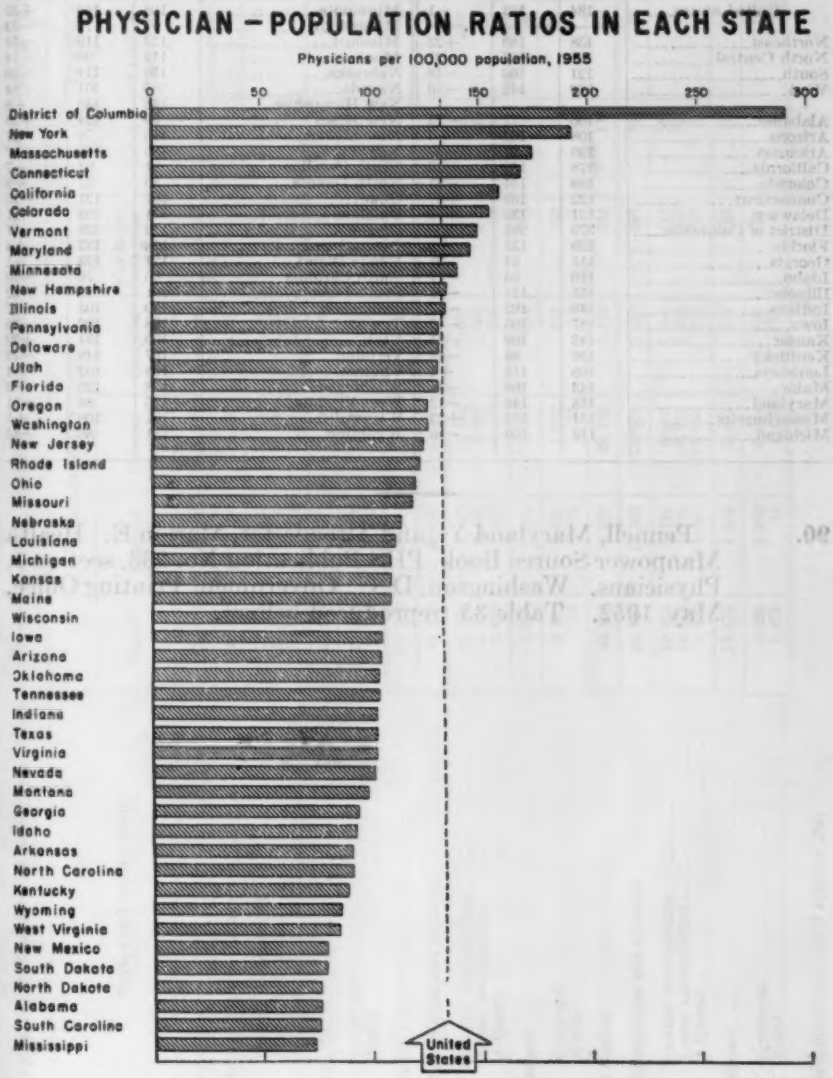
	Physicians per 100,000 population		State personal income [1]			
			Aggregate		Per capita	
	Rate	Percent of United States average	Amount (millions)	Percent	Amount	Percent of United States average
Total	133	100	$303,391	100.00	$1,847	100
Alabama	77	58	3,674	1.21	1,181	64
Arizona	104	78	1,588	.52	1,577	85
Arkansas	91	68	1,913	.63	1,062	57
California	159	120	29,438	9.70	2,271	123
Colorado	154	116	2,729	.90	1,764	96
Connecticut	169	127	5,497	1.81	2,499	135
Delaware	132	99	980	.32	2,513	136
District of Columbia	291	219	1,992	.66	2,324	126
Florida	131	98	5,923	1.95	1,654	90
Georgia	94	71	4,882	1.61	1,333	72
Idaho	93	70	895	.29	1,462	79
Illinois	134	101	20,988	6.91	2,257	122
Indiana	102	77	8,201	2.70	1,894	103
Iowa	105	79	4,213	1.39	1,577	85
Kansas	109	82	3,393	1.12	1,647	89
Kentucky	88	66	3,728	1.23	1,238	67
Louisiana	112	84	3,910	1.29	1,333	72
Maine	109	82	1,443	.48	1,593	86
Maryland	146	110	5,463	1.80	1,991	108
Massachusetts	174	131	10,010	3.29	2,097	114
Michigan	109	82	15,632	5.15	2,134	116
Minnesota	140	105	5,394	1.78	1,691	92
Mississippi	74	56	2,018	.67	946	51
Missouri	119	89	7,560	2.49	1,800	97
Montana	98	74	1,160	.38	1,844	100
Nebraska	114	86	2,147	.71	1,540	83
Nevada	101	76	572	.19	2,434	132
New Hampshire	135	102	958	.32	1,732	94
New Jersey	124	93	12,304	4.06	2,311	125
New Mexico	79	59	1,134	.37	1,430	77
New York	193	145	36,255	11.95	2,263	123
North Carolina	91	68	5,371	1.77	1,236	67
North Dakota	77	58	882	.29	1,372	74
Ohio	121	91	18,442	6.08	2,062	112
Oklahoma	103	77	3,328	1.10	1,506	82
Oregon	126	95	3,090	1.02	1,834	99
Pennsylvania	132	99	20,724	6.83	1,902	103
Rhode Island	123	92	1,599	.53	1,957	106
South Carolina	76	57	2,557	.84	1,108	60
South Dakota	79	59	850	.28	1,245	67
Tennessee	103	77	4,288	1.41	1,256	68
Texas	102	77	14,116	4.66	1,614	87
Utah	131	98	1,238	.41	1,553	84
Vermont	149	112	568	.19	1,535	83
Virginia	102	77	5,494	1.81	1,535	83
Washington	126	95	5,179	1.71	1,987	108
West Virginia	85	64	2,555	.84	1,288	70
Wisconsin	106	80	6,569	2.17	1,774	96
Wyoming	86	65	547	.18	1,753	95

[1] Data from Survey of Current Business 36:10–11, August 1956.

Division of Public Health Methods, Public Health Service: Chart Book on Health Service Manpower. Prepared for October 24, 1956, meeting of the National Advisory Health Council. Page 24 reproduced below.

New York Has the Highest Ratio of Physicians to Population; Mississippi Has the Lowest

New York and Massachusetts rank highest among States in the ratio of physicians to population in 1955, with 193 and 174 physicians per 100,000 population, respectively.



89. American Medical Association, American Medical Directory, 1922 and 1956, Chicago, the Association.
U. S. Bureau of the Census, Current Population Reports, Series P–25, Nos. 129 and 139. Data reproduced below compiled by Division of Public Health Methods, Public Health Service.

Physicians per 100,000 population in each region and State: 1921 and 1955

Region and State	1921 rate	1955 rate	Change	Region and State	1921 rate	1955 rate	Change
United States	134	133	−1	Minnesota	108	140	+32
				Mississippi	97	74	−23
Northeast	138	160	+22	Missouri	173	119	−54
North Central	138	117	−21	Montana	112	98	−14
South	121	103	−18	Nebraska	150	114	−36
West	152	142	−10	Nevada	185	101	−84
				New Hampshire	143	135	−8
Alabama	100	77	−23	New Jersey	99	124	+25
Arizona	108	104	−4	New Mexico	116	79	−37
Arkansas	138	91	−47	New York	156	193	+37
California	178	159	−19	North Carolina	84	91	+7
Colorado	189	154	−35	North Dakota	86	77	−9
Connecticut	122	169	+47	Ohio	137	121	−16
Delaware	121	132	+11	Oklahoma	124	103	−21
District of Columbia	379	291	−88	Oregon	143	126	−17
Florida	129	131	+2	Pennsylvania	128	132	+4
Georgia	115	94	−21	Rhode Island	124	123	−1
Idaho	110	93	−17	South Carolina	86	76	−10
Illinois	155	134	−21	South Dakota	101	79	−22
Indiana	149	102	−47	Tennessee	140	103	−37
Iowa	147	105	−42	Texas	128	102	−26
Kansas	143	109	−34	Utah	109	131	+22
Kentucky	136	88	−48	Vermont	167	149	−18
Louisiana	108	112	+4	Virginia	106	102	−4
Maine	143	109	−34	Washington	128	126	−2
Maryland	158	146	−12	West Virginia	116	85	−31
Massachusetts	151	174	+23	Wisconsin	101	106	+5
Michigan	119	109	−10	Wyoming	131	86	−45

90. Pennell, Maryland Y., and Altenderfer, Marion E. Health Manpower Source Book, PHS Publication No. 263, section 1, Physicians. Washington, D. C., Government Printing Office, May 1952. Table 35 (reproduced below).

TABLE 35.—*Number of active non-Federal physicians and physician-population ratios, by region, county group, and type of practice: 1949*

Region and county group [1]	Number of physicians					Physicians per 100,000 population [2]				
	Total	Limited specialty	General practice [3]	Hospital service	Not in private practice	Total	Limited specialty	General practice [3]	Hospital service	Not in private practice
United States	179,041	54,891	95,526	24,887	3,737	119	37	64	16	2
Metropolitan and adjacent	148,498	49,060	72,790	23,247	3,401	137	45	67	22	3
Greater metropolitan	77,262	26,347	35,443	13,737	1,735	173	59	79	31	4
Lesser metropolitan	52,887	19,395	23,749	8,293	1,450	131	48	59	20	4
Adjacent	18,349	3,318	13,598	1,217	216	78	14	58	5	1
Isolated	30,543	5,831	22,736	1,640	336	74	14	55	4	1
Semirural	26,421	5,670	18,826	1,608	317	80	17	57	5	1
Rural	4,122	161	3,910	32	19	50	2	48	(4)	(4)
Northeast	62,252	20,512	31,212	9,183	1,345	158	52	80	23	3
Metropolitan and adjacent	59,231	19,828	29,257	8,867	1,279	162	54	80	24	4
Greater metropolitan	42,269	14,473	19,784	7,065	947	187	64	88	31	4
Lesser metropolitan	12,539	4,373	6,294	1,564	308	134	47	67	17	3
Adjacent	4,423	982	3,179	238	24	94	21	67	5	1
Isolated	3,021	684	1,955	316	66	115	26	74	12	3
Semirural	2,982	681	1,920	316	65	116	27	75	12	2
Rural	39	3	35	0	1	64	5	57	0	2
North Central	50,894	14,377	28,103	7,472	942	115	32	64	17	2
Metropolitan and adjacent	40,821	12,568	20,631	6,768	854	128	39	65	21	3
Greater metropolitan	19,329	6,176	8,803	3,908	442	152	49	69	31	3
Lesser metropolitan	14,611	5,329	6,762	2,213	307	129	47	60	20	3
Adjacent	6,881	1,063	5,066	647	105	86	13	64	8	1
Isolated	10,073	1,809	7,472	704	88	82	15	61	5	1
Semirural	8,596	1,768	6,049	692	87	90	19	63	7	1
Rural	1,477	41	1,423	12	1	54	2	52	(4)	(4)

[1] See footnotes at end of table, p. 282.

TABLE 35.—*Number of active non-Federal physicians and physician-population ratios, by region, county group, and type of practice: 1949*—Con.

Region and county group [1]	Number of physicians					Physicians per 100,000 population [2]				
	Total	Limited specialty	General practice [3]	Hospital service	Not in private practice	Total	Limited specialty	General practice [3]	Hospital service	Not in private practice
South	41,926	11,854	23,453	5,527	1,092	89	25	50	12	2
Metropolitan and adjacent	28,631	9,503	13,142	5,049	937	112	37	51	20	4
Greater metropolitan	4,944	[1] 660	1,773	1,319	192	178	60	64	47	7
Lesser metropolitan	18,709	7,056	7,473	3,496	684	130	49	52	24	5
Adjacent	4,978	787	3,896	234	61	59	9	46	3	1
Isolated	13,295	2,351	10,311	478	155	63	11	49	2	1
Semirural	11,137	2,251	8,284	463	139	67	13	50	3	1
Rural	2,158	100	2,027	15	16	46	2	43	(4)	(4)
West	23,969	8,148	12,758	2,705	358	123	42	65	14	2
Metropolitan and adjacent	19,815	7,161	9,760	2,563	331	139	50	69	18	2
Greater metropolitan	10,720	4,038	5,083	1,445	154	164	62	78	22	2
Lesser metropolitan	7,028	2,637	3,220	1,020	151	134	50	61	20	3
Adjacent	2,067	486	1,457	98	26	83	19	59	4	1
Isolated	4,154	987	2,998	142	27	81	19	58	3	1
Semirural	3,706	970	2,573	137	26	85	22	59	3	1
Rural	448	17	425	5	1	59	2	56	1	(4)

[1] Metropolitan counties are counties within standard metropolitan areas as defined by Bureau of the Census. A greater metropolitan county is one containing any part of a standard metropolitan area of 1 million population or more. Lesser metropolitan counties are all other metropolitan counties. Adjacent counties are counties that are not themselves metropolitan but are contiguous with metropolitan counties. All other counties are classified as isolated; semirural counties contain an incorporated place of 2,500 or more population, rural counties do not.

[2] Computed on the basis of the 1950 population obtained from the official census. Excludes an estimated 700,000 persons not distributed to State of residence by October 1950.

[3] Includes those in general practice who give special attention to a specialty.

[4] Less than 0.5.

Division of Public Health Methods, Public Health Service. Chart Book on Health Service Manpower. Prepared for October 24, 1956, meeting of the National Advisory Health Council, p. 29 (reproduced below).

Isolated counties, though together they contain about 27 percent of the total population of the United States, have only about 17 percent of the active non-Federal physicians.

In 1950 nearly three-fourths (73 percent) of the population was living in metropolitan counties or in counties contiguous to them. These persons are assumed to be served by or readily accessible to large urban medical centers. Persons in isolated counties are less likely to have the advantages of easy access to a metropolitan center, and their health services are for the most part limited to those which can be obtained locally.

In relation to population there were twice as many active non-Federal physicians in 1949 in the metropolitan service areas as in the more isolated counties.

To bring the isolated counties up to the metropolitan-adjacent rate—from 69 to 112 physicians in private practice per 100,000 population—would have required about 18,000 additional physicians.

Physician-population ratios by county group

County group [1]	1950 population (thousands)	Active non-Federal physicians, 1949				
		Number	Rate per 100,000 population			
			Total	Specialists	General practitioners	Hospitals, other
United States	150,697	179,041	119	37	64	18
Metropolitan-adjacent	109,272	148,498	137	45	67	25
Greater metropolitan	44,946	77,262	173	59	79	35
Lesser metropolitan	40,632	52,887	131	48	59	24
Adjacent	23,694	18,349	78	14	58	6
Isolated	41,425	30,543	74	14	55	5
Isolated semirural	33,177	26,421	80	17	57	6
Isolated rural	8,248	4,122	50	2	48	(2)

[1] Metropolitan counties are counties within standard metropolitan areas as defined by Bureau of the Census. A greater metropolitan county is 1 containing any part of a standard metropolitan area of 1,000,000 population or more. Lesser metropolitan counties are all other metropolitan counties. Adjacent counties are counties that are not themselves metropolitan but are contiguous with metropolitan counties. All other counties are classified as isolated; semirural counties contain an incorporated place of 2,500 or more population, rural counties do not.

[2] Less than 0.5.

Source: PHS Pub. No. 263, sec. 1, table 35.

91. American Academy of Pediatrics. Child Health Services and Pediatric Education. New York, Commonwealth Fund, 1949, p. 33.

92–95. Weiskotten, H. G., and Altenderfer, Marion E. Trends in Medical Practice. Journal of Medical Education 31: 1–92, Part 2, July 1956. Tables 7, 11, 14, and 16 (reproduced below).

TABLE 7.—*Percent of graduates of each medical college in private practice who are practicing in the same State as the medical college attended, 1930, 1935, 1940, and 1945 classes*

Form of medical college control and medical college	Year of graduation			
	1930	1935	1940	1945
Total	55.7	50.9	46.0	45.9
Public	56.3	55.0	53.4	52.2
Arkansas	[1]50.0	[1]33.3	47.1	66.7
California	93.5	85.7	96.7	86.5
Cincinnati	66.7	54.3	51.4	45.1
Colorado	[1]50.0	44.0	50.0	60.7
Georgia	[1]56.2	[1]63.2	[1]69.2	59.5
Illinois	70.6	45.9	50.7	42.2
Indiana	80.0	83.0	68.4	56.7
Iowa	56.7	52.8	63.0	52.2
Kansas	28.6	52.8	43.6	43.8
Louisiana	[2]	34.8	45.9	48.8
Louisville	40.7	43.9	30.8	38.1
Maryland	26.4	36.8	37.3	31.9
Michigan	53.5	43.4	50.0	53.5
Minnesota	65.3	54.7	45.3	43.5
Nebraska	51.2	18.2	41.0	33.3
Ohio	91.9	84.1	73.0	68.2
Oklahoma	55.2	53.1	67.9	55.0
Oregon	[1]45.8	[1]79.2	39.3	44.4
South Carolina	[1]81.0	[1]66.7	60.7	72.0
Tennessee	43.2	53.3	42.6	45.8
Texas	84.6	95.3	91.1	88.1
Utah	[2]	[2]	[2]	69.6
Vermont	[1]36.8	[1]29.4	[1]33.3	36.4
Medical College of Virginia	11.5	38.5	31.0	39.7
University of Virginia	17.2	50.0	46.4	31.6
Wayne	94.3	77.1	78.6	60.6
Wisconsin	[1]80.0	51.5	41.9	56.8
Private	55.4	48.6	41.6	41.8
Albany	[1]78.6	[1]90.0	[1]63.2	72.2
Baylor	84.2	80.5	78.4	79.2
Boston	47.1	46.2	[1]37.5	35.7
Bowman Gray	[2]	[2]	[2]	75.0
Buffalo	94.3	86.1	78.6	73.9
Chicago Medical School	[2]	85.2	77.8	65.2
Chicago University	[2]	[1]9.1	[1]28.6	12.9
Columbia	73.0	49.1	43.4	33.3
Cornell	66.7	46.2	48.6	24.4
Creighton	17.9	25.0	8.3	11.8
Duke	[2]	20.0	32.3	15.8
Emory	38.5	46.9	46.7	43.6
Georgetown	10.3	9.8	19.6	16.0
George Washington	12.0	29.7	[1]31.8	22.9
Hahnemann	54.8	55.1	43.8	44.6
Harvard	50.0	27.9	26.9	25.0
Howard		[1]5.3	[1]23.5	4.8
Jefferson	56.5	54.1	42.4	33.3
Johns Hopkins	12.1	15.4	13.5	6.2
Long Island	89.9	67.3	44.7	51.0
Loyola	58.5	61.0	36.6	46.9
Marquette	88.1	46.9	35.5	46.2
Medical Evangelists	50.0	64.3	51.1	61.9
Meharry	[1]8.7			
New York Medical College	93.6	69.7	39.3	62.5
New York University	80.0	71.1	51.4	68.8
Northwestern	30.4	28.6	25.6	20.8
Pennsylvania	44.2	57.0	45.7	45.9
Pittsburgh	93.8	83.3	84.0	77.8
Rochester	[1]50.0	55.6	42.9	45.8
Rush	35.8	20.2	15.9	[2]
St. Louis	33.3	28.0	14.3	25.3
Southern California	[2]	[1]94.4	100.0	91.4
Southwestern	[2]	[2]	[2]	68.0
Stanford	91.4	96.7	97.0	88.9
Syracuse	80.6	76.5	68.6	64.7
Temple	74.2	63.6	46.0	50.0
Tufts	58.2	57.7	50.0	58.6
Tulane	33.3	22.4	24.6	20.0
Vanderbilt	[1]22.2	[1]27.3	32.4	20.5
Washington	38.1	43.1	32.7	38.1
Western Reserve	73.0	64.9	67.6	59.6
Woman's	[1]67.1	[1]30.8	[1]44.4	22.2
Yale	34.6	[1]25.0	[1]31.8	16.7

[1] Percent based on less than 25.
[2] Not included in study for this year.

TABLE 11.—*Percentage distribution of medical-college graduates by relationship between place of practice and places of internship, medical college, and prior residence, 1935, 1940, and 1945 classes*

Relationship	Same city			Same State		
	1935	1940	1945	1935	1940	1945
Number of graduates [1]	518	483	3,657	518	483	3,657
Total	100.0	100.0	100.0	100.0	100.0	100.0
Practicing in same place as internship	22.2	22.2	20.3	49.6	43.7	43.6
Medical college and prior residence also in same place [2]	8.7	9.7	7.6	33.4	25.9	27.0
Medical college also in same place [2]	4.4	4.1	3.6	5.0	3.9	2.6
Prior residence also in same place [2]	4.4	3.3	3.9	6.8	6.6	7.9
Internship alone in same place [2]	4.6	5.0	5.2	4.4	7.2	6.2
Practicing in same place as medical college	18.5	18.6	17.7	49.8	41.8	44.0
Internship and prior residence also in same place	8.7	9.7	7.6	33.4	25.9	27.0
Internship also in same place	4.4	4.1	3.6	5.0	3.9	2.6
Prior residence also in same place [2]	3.1	3.1	3.3	9.7	10.8	12.3
Medical college alone in same place [2]	2.3	1.7	3.3	1.7	1.2	2.2
Practicing in same place as prior residence	29.5	31.9	27.7	61.4	54.7	57.4
Internship and medical college also in same place	8.7	9.7	7.6	33.4	25.9	27.0
Internship also in same place	4.4	3.3	3.9	6.8	6.6	7.9
Medical college also in same place	3.1	3.1	3.3	9.7	10.8	12.3
Prior residence alone in same place [2]	13.3	15.7	12.9	11.6	11.4	10.3
Practicing in a different place [2]	59.1	57.3	60.2	27.4	32.9	31.6

[1] Excludes those not in practice, those in the Armed Forces, medical missionaries, residents, and fellows.
[2] These 8 items add to 100 percent.

TABLE 16.—*Percentage distribution of graduates of medical colleges in private practice whose prior residence was in various size communities by size of community of practice, 1945 class*

Size of community of prior residence	Number of graduates	All sizes	Size of community of practice						
			500,000 and over	100,000 to 499,999	50,000 to 99,999	25,000 to 49,999	5,000 to 24,999	2,500 to 4,999	Under 2,500
All sizes	[1] 3,178	100.0	19.7	23.2	10.7	11.2	21.2	4.5	9.2
500,000 and over	783	100.0	50.8	9.6	7.5	8.4	14.6	2.2	6.8
100,000 to 499,999	610	100.0	9.7	53.9	6.2	9.0	13.6	2.6	4.6
50,000 to 99,999	304	100.0	10.8	15.5	41.8	5.9	16.8	2.3	6.9
25,000 to 49,999	294	100.0	9.9	19.7	8.2	33.7	17.3	4.1	7.1
5,000 to 24,999	611	100.0	10.1	18.0	7.9	10.8	39.9	4.4	8.7
2,500 to 4,999	173	100.0	8.7	23.7	2.9	11.0	22.5	17.3	13.9
Under 2,500	390	100.0	6.4	19.2	9.7	8.5	23.3	9.0	23.8

[1] Includes 5 graduates whose community of practice is not known and 13 whose community of prior residence is not known.

TABLE 14.—*Graduates of each public and private medical college in private practice in the United States who are practicing in communities of less than 25,000 and those whose prior residence was in communities of less than 25,000, 1945 class*

Form of medical college control and medical college	Number of graduates			Percent practicing in communities under 25,000	Percent with prior residence in communities under 25,000
	Total	Practicing in communities under 25,000	Prior residence in communities under 25,000		
Total	3,178	1,113	1,174	35.0	36.9
Public	1,252	491	533	39.2	42.6
Arkansas	36	13	24	36.1	66.7
California	37	13	5	35.1	13.5
Cincinnati	51	10	13	19.6	25.5
Colorado	28	7	7	25.0	25.0
Georgia	37	21	24	56.8	64.9
Illinois	90	29	31	32.2	34.4
Indiana	67	25	30	37.3	44.8
Iowa	46	20	33	43.5	71.7
Kansas	48	20	29	41.7	60.4
Louisiana	41	17	16	41.5	39.0
Louisville	42	20	22	47.6	52.4
Maryland	47	15	15	31.9	31.9
Michigan	71	23	20	32.4	28.2
Minnesota	62	27	31	43.5	50.0
Nebraska	45	21	21	46.7	46.7
Ohio	44	11	15	25.0	34.1
Oklahoma	40	18	21	45.0	52.5
Oregon	45	17	16	37.8	35.6
South Carolina	25	14	16	56.0	64.0
Tennessee	83	35	38	42.2	45.8
Texas	67	24	26	35.8	38.8
Utah	23	11	9	47.8	39.1
Vermont	11	3	6	27.3	54.5
Medical College of Virginia	58	32	31	55.2	53.4
University of Virginia	38	17	16	44.7	42.1
Wayne	33	11	6	33.3	18.2
Wisconsin	37	17	12	45.9	32.4
Private	1,926	622	641	32.3	33.3
Albany	18	5	3	27.8	16.7
Baylor	24	13	12	54.2	50.0
Boston	28	11	4	39.3	14.3
Bowman Gray	24	12	11	50.0	45.8
Buffalo	46	16	17	34.8	37.0
Chicago Medical School	23	5	3	21.7	13.0
Chicago University	31	9	10	29.0	32.3
Columbia	57	23	16	40.4	28.1
Cornell	45	16	17	35.6	37.8
Creighton	34	10	8	29.4	23.5
Duke	38	4	13	10.5	34.2
Emory	39	11	20	28.2	51.3
Georgetown	50	10	14	20.0	28.0
George Washington	35	18	12	51.4	34.3
Hahnemann	74	29	26	39.2	35.1
Harvard	68	14	30	20.6	44.1
Howard	21	1	0	4.8	0
Jefferson	90	33	46	36.7	51.1
Johns Hopkins	32	12	13	37.5	40.6
Long Island	51	15	9	29.4	17.6
Loyola	49	18	7	36.7	14.3
Marquette	52	14	14	26.9	26.9
Medical Evangelists	42	30	22	71.4	52.4
Meharry	21	3	0	14.3	0
New York Medical College	40	9	9	22.5	22.5
New York University	64	24	6	37.5	9.4
Northwestern	72	24	35	33.3	48.6
Pennsylvania	74	24	36	32.4	48.6
Pittsburgh	45	14	16	31.1	35.6
Rochester	24	5	7	20.8	29.2

TABLE 14.—*Graduates of each public and private medical college in private practice in the United States who are practicing in communities of less than 25,000 and those whose prior residence was in communities of less than 25,000, 1945 class*—Con.

Form of medical college control and medical college	Number of graduates			Percent practicing in communities under 25,000	Percent with prior residence in communities under 25,000
	Total	Practicing in communities under 25,000	Prior residence in communities under 25,000		
Private—Continued					
St. Louis	75	19	18	25.3	24.0
Southern California	35	13	5	37.1	14.3
Southwestern	25	13	11	52.0	44.0
Stanford	27	10	6	37.0	22.2
Syracuse	34	11	16	32.4	47.1
Temple	72	31	38	43.1	52.8
Tufts	58	18	14	31.0	24.1
Tulane	90	19	27	21.1	30.0
Vanderbilt	39	12	18	30.8	46.2
Washington	63	25	28	39.7	44.4
Western Reserve	52	9	12	17.3	23.1
Woman's	9	2	3	22.2	33.3
Yale	36	8	9	22.2	25.0

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96. Medical Education in the United States and Canada, Journal of the American Medical Association 159: 570, October 8, 1955.

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97. See questions 98 to 104.

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98. House of Representatives, Committee on Interstate and Foreign Commerce, Health Inquiry, Part 4, 83d Congress, 1st session, October 1953, pages 1034, 1120.

99. Replies to staff inquiries received from joint information service of American Psychiatric Association and National Association of Mental Health, and National Institute of Mental Health, Public Health Service.

See also, Patients in Mental Institutions, 1953, Public Health Service Publication No. 495, part I, table 21 (reproduced in part below).

TABLE 21.—*Personnel employed full time and part time, and reported full-time vacancies in public institutions for mental defectives and epileptics, by occupation, United States, 1953*

[Statistics based on reports from 95 of the 98 public institutions]

Occupation	Total	Positions filled	Reported full-time vacancies
Total full-time personnel	33,060	31,025	2,035
Superintendents and assistant superintendents	134	127	7
Physicians, total	407	310	97
Clinical director	32	22	10
Staff physicians, psychiatric	147	104	43
Staff physicians, other	194	158	36
Psychiatric residents	34	26	8
Medical interns	16	11	5
Clinical assistants	40	22	18
Dentists	88	75	13
Dental assistants	69	51	18
Psychologists and psychometrists	179	151	28
Pharmacists	45	34	11
Laboratory and X-ray technicians	146	134	12
Therapists and assistants, total	420	325	95
Occupational therapists and assistants	300	226	74
Hydrotherapists, physiotherapists and assistants	26	17	9
Other therapists and assistants	94	82	12
Registered professional nurses	980	750	230
Other nurses and attendants, total	18,425	17,492	933
Other nurses	355	312	43
Supervisors and assistant supervisors of ward service	1,293	1,215	78
Attendants	16,148	15,353	795
Matrons and assistant matrons	629	612	17
Principals and teachers, total	948	848	100
Principals of schools	62	57	5
Teachers of grade subjects	623	548	75
Teachers of special subjects	263	243	20
Industrial instructors and supervisors	135	111	24
Social workers, total	287	250	37
Psychiatric social workers	200	170	30
Social group workers	17	16	1
Other social workers	70	64	6
Dietitians	92	75	17
Other professional personnel	101	87	14
Stewards, assistant stewards, and business managers	127	123	4
Housekeepers and assistants	343	327	16
Clerical personnel	1,590	1,512	78
All other personnel	8,488	8,210	278
Total part-time personnel	514	514	----
Consulting physicians	231	231	----
Other part-time physicians	57	57	----
Other professional personnel	106	106	----
All other part-time personnel	120	120	----

100. Greve, Clifford H., and Campbell, Josephine R., Organization and Staffing for Full-Time Local Health Services as of December 31, 1953, Public Health Service Publication No. 441, table 10 (reproduced below).

TABLE 10.—*Number of additional full-time health agency personnel of each designated type needed in each State to staff reporting health organizations according to recommended minimum staffing requirements,*[1] *and number of organizations with deficiencies in each type of personnel, Dec. 31, 1953*

State	Total number of organizations reporting	Physicians		Nurses		Sanitation personnel		Clerks	
		Additional needed	Organizations deficient	Additional needed	Organizations deficient	Additional needed	Organizations deficient	Additional needed	Organizations deficient
Total	1,389	1,720	849	15,436	1,315	3,032	840	2,629	708
Alabama	67	49	36	415	67	53	37	71	41
Arizona	8	13	8	103	7	20	5	26	7
Arkansas	27	30	23	250	27	69	24	41	19
California	52	76	36	1,156	45	125	28	42	17
Colorado	11	14	7	91	10	8	5	11	6
Connecticut	15	6	5	85	12	26	12	23	10
Delaware	4	3	2	26	3	8	2	11	3
District of Columbia	1			46	1				
Florida	40	28	15	318	37	33	17	39	15
Georgia	55	41	35	248	52	65	41	27	17
Idaho	5	7	5	29	5	14	5	10	3
Illinois	34	109	19	1,295	31	366	30	287	22
Indiana	15	73	11	617	15	170	10	208	14
Iowa	9	48	9	349	9	141	7	148	8
Kansas	15	15	11	111	15	11	9	22	13
Kentucky	117	93	89	347	105	73	58	19	12
Louisiana	60	54	43	356	50	27	20	15	13
Maine	10	9	6	111	10	36	9	38	8
Maryland	24	19	7	119	18	43	13	13	4
Massachusetts	21	62	17	516	18	118	14	111	17
Michigan	45	66	24	571	44	108	36	91	34
Minnesota	13	48	10	460	12	130	10	112	10
Mississippi	58	18	18	228	58	37	31	21	15
Missouri	35	67	28	583	34	97	22	107	21
Montana	5			7	4	4	3	4	3
Nebraska	4	9	4	64	4	1	1	8	3
Nevada	2			19	2	2	1	6	2
New Hampshire	1	1	1	2	1			3	1
New Jersey	80	120	78	513	71	152	41	121	20
New Mexico	10	8	5	99	10	25	9	10	2
New York	39	161	33	1,084	36	196	26	57	15
North Carolina	69	24	23	370	67	87	51	81	48
North Dakota	8	7	7	28	5	8	5	10	5
Ohio	74	84	36	1,113	72	163	44	238	59
Oklahoma	27	13	10	239	27	31	20	37	18
Oregon	17	9	6	130	17	27	14	29	12
Pennsylvania	28	64	21	599	26	114	15	80	21
Rhode Island	7	13	6	121	7	31	6	32	6
South Carolina	49	27	27	228	46	37	25	37	24
South Dakota	2	2	2	18	2	2	1	3	1
Tennessee	57	41	37	360	57	58	38	35	28
Texas	47	64	25	823	47	54	22	111	38
Utah	6	13	5	35	6	10	3	24	6
Vermont	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Virginia	48	18	13	366	48	48	21	41	19
Washington	19	23	12	190	18	20	10	31	15
West Virginia	28	27	20	254	28	51	23	48	21
Wisconsin	20	44	14	346	19	131	15	87	11
Wyoming	1			8	1	2	1	3	1

[1] For recommended minimum staffing requirements see p. 20 of the report.
[2] Vermont has no full-time health organizations rendering local health service.

See also Directory of Full-Time Local Health Units, 1956, Public Health Service Publication No. 118, page 72 (reproduced below).

Number of full-time units rendering local health service with position of health officer vacant or temporarily served by a neighboring health officer, July 1956

State	Total health units	Single county units	City health units	Local health districts		State health districts	
				Units	Counties served	Units	Counties served
Total continental United States	436	296	29	82	239	29	350
Alabama	16	16					
Arizona	3	2	1				
Arkansas	20	6	1	13	44		
California	6	5	1				
Colorado	2			2	8		
Connecticut	0						
Delaware	2		1			1	1
District of Columbia	0						
Florida	1			1	2		
Georgia	26	9		16	45	1	9
Idaho	2			2	9		
Illinois	7	2		4	[1] 4	1	14
Indiana	10	2	2	1	2	5	83
Iowa	8	3				5	83
Kansas	11	10		1	2		
Kentucky	99	99					
Louisiana	16	16					
Maine	1					1	[1] 2
Maryland	1	1					
Massachusetts	3		3				
Michigan	10	5	1	4	13		
Minnesota	5		1			4	40
Mississippi	20	12		8	19		
Missouri	28	19	3			6	83
Montana	2	2					
Nebraska	2	2					
Nevada	0						
New Hampshire	0						
New Jersey	4		4				
New Mexico	0						
New York	2	2					
North Carolina	12	8	1	3	6		
North Dakota	5		2	3	18		
Ohio	5	2	2			1	7
Oklahoma	7	2		5	15		
Oregon	2	1		1	3		
Pennsylvania	2		1			1	(1)
Rhode Island	0						
South Carolina	23	23					
South Dakota	1	1					
Tennessee	32	21	1	10	22		
Texas	10	8		2	5		
Utah	0						
Vermont	0						
Virginia	1		1				
Washington	0						
West Virginia	22	16		6	22		
Wisconsin	7	1	3			3	28
Wyoming	0						

[1] Counties with only specific areas organized for full-time local health service are not included.

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101. Public Health Service.

102. Reply to staff outline received from Veterans' Administration.

VETERANS' ADMINISTRATION,
OFFICE OF THE ADMINISTRATOR OF VETERANS' AFFAIRS,
Washington D. C., November 8, 1956.

Mr. KURT BORCHARDT,
Legal Counsel, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D. C.

DEAR MR. BORCHARDT: This is with further reference to your letters of August 14 and September 6, 1956, concerning a study being undertaken by the staff of the committee on the subject of Federal aid to medical education and to your recent oral requests for specified information relating to this matter.

In response thereto, there are enclosed herewith a copy of a memorandum and statistical tables submitted by the Chief Medical Director relating to the subject of supply and demand for professional medical personnel, with particular reference to the unmet needs of the Veterans' Administration in this field. In this connection, there is enclosed a reprint from the August 12, 1950, issue of the Journal of the American Medical Association entitled "The Medical Care of the Veteran," which is believed to be of interest. Additionally, there has been prepared by the Department of Veterans' Benefits and is enclosed a statement relating to the education and training benefits which are, or have been, available to veterans of World War II and the Korean conflict period under laws administered by the Veterans' Administration, with a statistical summary of the number of veterans who have entered medical, and related, training under these programs.

It is hoped the foregoing is responsive to your requests. It is understood that you may wish to discuss these statements and data with the staff of the Veterans' Administration after you have had an opportunity to review and assess them in relation to the Committee study. Please contact Mr. Daley (Government code 139, ext. 404) to arrange for such discussions, if desired.

Sincerely yours,

JOHN S. PATTERSON,
Deputy Administrator.

NOVEMBER 2, 1956.

To: Associate General Counsel for Legislative Services, VA Building, room 1034, 10FB.
From: Chief Medical Director.
Subject: Study by staff of Committee on Interstate and Foreign Commerce, House of Representatives, on the subject of Federal aid to medical education.

1. The following report is provided in response to a telephone inquiry from Mr. Borchardt to Dr. Nunemaker in response to my reply to you August 27, 1956.

2. As a result of this telephone contact, on October 8, 1956, a memorandum was directed by Dr. Nunemaker to the Department of Medicine and Surgery Controller and the Assistant Chief Medical Directors for Operations and Planning. This memorandum stated that Mr. Borchardt wished a report from the VA on the subject of

supply and demand for professional personnel with particular reference to unmet needs on the part of the Veterans' Administration Department of Medicine and Surgery. The subject was to be discussed under three headings of "Public Programs," "Institutions," and "Professional Specialties" such as psychiatry, physical medicine and rehabilitation, geriatrics, and industrial medicine.

3. The needs for physicians can be described in two broad categories—for resident physicians, and for full-time physicians. Table No. I reveals statistics from 1949 to date which show the growth in numbers of hospitals, the total number of residents on duty as of a specific date, the number of these totals occupied by residents in psychiatry, and the additional residents on the career program in psychiatry for the last 3 years. Included are reports from the Journal of the American Medical Association for the past 5 years indicating the number of residency position vacancies as determined by a report obtained by the American Medical Association on a basis of communication with individual hospitals. This latter report is not an official VA report and the number of residency positions offered indicates the individual hospital's desire rather than the actual number of positions authorized by the Veterans' Administration.

It will be noted that over the past 5 years there has been an increase of 19 in VA hospitals and a corresponding increase in residencies authorized. For this period of time it can be said that approximately 25 percent of the residencies offered have not been filled because of recruitment difficulties. While the figure for the VA is 23 percent vacant for fiscal year 1956, the corresponding figure for the Nation as a whole is 21,425 positions filled out of 26,516 offered, leaving a vacancy figure of 19 percent overall.

In fiscal year 1952, the proportion of residents in psychiatry out of the total in the VA was 273 out of 2,047 or 13 percent. Because of this severe recruiting difficulty, a career-training program was inaugurated in fiscal year 1954. This program required a contractual agreement to give 2 years of obligatory service upon the conclusion of 3 years of training conducted exactly like the regular residency training programs. The salary scale differs in that the career residents are paid at the salary rates for full-time physicians. As a result of this program, for fiscal year 1956, the regular residents in psychiatry totaled 224 and the career residents totaled 241. Table II reveals that the total number of residents in psychiatry on duty for fiscal year 1956 was 465 out of all VA residents, or 18 percent of the total. In contrast, the comparable figures for the Nation as a whole, show there were 1,950 residents in psychiatry out of the total of 21,425, or 9 percent.

In the specialty of physical medicine and rehabilitation, the Veterans' Administration offers 17 out of the 57 residency programs in the Nation, or 30 percent. The VA statistics reveal that for fiscal year 1956 there were 2 regular residents on duty and 12 career residents in this specialty. A total of 39 positions are offered according to the listing in the Journal of the American Medical Association referred to above, so therefore 14 of the 39 positions are filled, leaving vacancies for residents in the specialty of Physical Medicine and Rehabilitation of 63 percent. Comparable figures for the Nation as a whole reveal that of the total of 175 positions offered, 99 (57%) are vacant. (Table III.)

4. The sources of the above data are the Annual Report of the Administrator of Veterans' Affairs and the Annual Residency and Internship Number of the Journal of the American Medical Association, September 22, 1956. Additional background material on the entire subject of the relation of Veterans' Administration hospitals to medical schools is found in the reprint entitled "The Medical Care of the Veteran" by Dr. Roy E. Kracke. This report was prepared by the special medical advisory group to the Veterans' Administration, and published in the Journal of the American Medical Association, August 12, 1950. On page 1328 of this reprint the educational and research program is described. The statement is made that approximately 2,500 residents are in training in approximately 72 hospitals and that this constitutes about 17 percent of the approved residencies in the United States. Actually, there probably have never been 2,500 residents on duty for one entire year, since the number on duty changes month by month, particularly in relation to the military requirements. For fiscal year 1956, the total number of VA residents on duty constituted only 11 percent of those on duty in the country as a whole, indicating that the proportion is lower because of the increase in total number of non-VA residencies. At the present time residency training programs are conducted in 94 VA hospitals. Eighty-three of these hospitals are affiliated in such training programs with 73 medical schools.

5. An additional evidence of the close relationship between VA hospitals and medical schools is the situation in two areas of the country where VA facilities were instrumental in permitting new medical schools to make an early start through the use of space on the VA hospital grounds. At Miami, the University of Miami was able to rent a warehouse building from the Veterans' Administration located on VA property adjacent to the VA hospital at Coral Gables. This warehouse was converted to laboratory and teaching space so that the medical school successfully got under way and graduated its first fourth-year class the past year. At Los Angeles, a similar situation occurred where the University of California at Los Angeles was able to use VA property and space both at Los Angeles VA Hospital Sawtelle, and Long Beach VA hospital, thus providing for a holding operation until its own buildings were completed. The University of California at Los Angeles graduated its first fourth-year class in 1955.

6. The role of VA hospitals in contributing to undergraduate medical education is described in the Journal of the American Medical Association, August 25, 1956, pages 1675 and 1676, where it is revealed that the clinical facilities at 54 VA hospitals are being used in the teaching of students in the second, third, and fourth years. Sixty medical schools are associated in this effort and in the school year 1954–55, 3,903 medical students served as clinical clerks. This is over 50 percent of all the medical students in the country graduated this year. There could be a definite expansion of this activity if the medical schools desired, since the Veterans' Administration welcomes the presence of medical students for teaching purposes because of its stimulating effect on the VA staff and the corresponding effect on medical care.

7. Probably the most significant reason for the failure of the Veterans' Administration residency training programs to attract the optimal number of candidates is the supply of residents. Competition

among hospitals in the United States is keen, and while the stipend is of some importance in the consideration of a resident, the quality of the training program is paramount in this regard. Since most VA hospital residencies are intimately related to those in corresponding university hospitals, their quality leaves little to be desired and the stipend paid is favorable in relation to that paid in the associated university hospital. Because of the very severe recruitment difficulties in the specialities of psychiatry and physical medicine, it was necessary to inaugurate a career residency program with a salary more than double that paid to regular residents. It must be noted, however, that only 50 percent of all VA residents in psychiatry are employed on a career basis while the others receive the same stipend as do all other regular residents in the VA program.

8. It is important to recognize that with the passage of Public Law 293, 79th Congress, January 1946, the employment of physicians increased from 2,300 in June 1945 to approximately 4,000 in June 1946 (table IV). A recent special report as of October 10, 1956 (table V), shows the number of vacancies for which hospitals and clinics specifically required assistance in recruiting. As of November 1, 1956, a report will be available for the first time which gives us a figure of the true vacancies whether or not the individual stations require assistance in recruitment. It will be noted that this latest report showing 399 total vacancies for which help is needed shows that 171 or 43 percent of the vacancies are in psychiatry and neurology. The very small figure of 16 vacancies for which assistance is needed in recruiting physicians in physical medicine and rehabilitation simply reflects the small number of departments in VA hospitals and the extreme shortage of these personnel.

9. Table VI indicates the staffing shortages for psychiatrists in VA hospitals over a period of 6 years. The VA has had severe staffing shortages in the specialty of psychiatry for a number of years and as this table shows, the situation is not likely to get any better. For March 31, 1956, there were 502 physician-psychiatrists caring for almost 50,000 psychiatric patients. According to the standards developed by the American Psychiatric Association the VA needs 866 psychiatrists to give proper treatment to these patients, or 364 more psychiatrists than it now has.

10. Table VII is a table similar to that giving the figures as of October 10, 1956, but going back for the previous 5 years. It must be remembered that these tables indicate only those vacancies where recruiting assistance is desired and which can be filled within the annual budget assigned to the individual hospital. In the specialties of physical medicine and rehabilitation, radiology, and pathology, true vacancies are not properly listed for many hospitals because it is considered that full-time employees in these specialties could never be recruited in view of the nationwide shortage. Total vacancies for full-time physicians in term of true needs would probably be well over 500 for the entire Department of Medicine and Surgery.

WILLIAM S. MIDDLETON, M. D.

TABLE I

VETERANS' ADMINISTRATION STATISTICS

On-duty date	Number of hospitals each fiscal year	Number of residents		
		Total	Psychiatry	+Career residents
May 31, 1949	129	2,200	366	
May 31, 1950	136	2,418	420	
June 15, 1951	151	2,127	337	
June 30, 1952	154	2,047	273	
Apr. 15, 1953	162	2,035	291	
April 1954	170	2,232	255	+73
April 1955	173	2,332	238	+141
April 1956	173	2,315	224	+241

AMERICAN MEDICAL ASSOCIATION STATISTICS FOR VA HOSPITALS [1]

Year	Residencies filled	Residencies offered	Percent vacant
1951–52	2,120	2,803	24
1952–53	2,021	2,763	27
1953–54	2,072	2,848	27
1954–55	2,252	3,124	28
1955–56	2,353	3,067	23

[1] Journal of the American Medical Association, Sept. 22, 1956.

TABLE II.—*Comparative data*

	Total psychiatric residents	Total residents	Psychiatric residents, percent of total
VA data	465	2,556	18
Journal of the American Medical Association data for total United States [1]	1,950	21,425	9

[1] Journal of the American Medical Association, Sept. 22, 1956.

TABLE III.—*Physical medicine and rehabilitation residents*

	On duty	Vacant	
		Number	Percent of total
VA data	14	25	63
JAMA data for total United States [1]	76	99	57

[1] Journal of the American Medical Association, Sept. 22, 1956.

TABLE IV.—*Full-time physicians on duty*

June 1945 (1,700 military duty)	2,300	June 1951	4,014
June 1946	4,000	June 1952	4,160
June 1947	3,200	June 1953	4,160
June 1948	3,536	June 1954	4,384
June 1949	3,883	June 1955	4,459
June 1950	3,991	June 1956	4,541

TABLE V.—*Vacancies for full-time physicians, Department of Medicine and Surgery, as of Oct. 10, 1956* [1]

Organizational segment	Total	Chief	Other
Total	399	118	281
Administrative, total	11	8	3
Surgery, total	52	22	30
General surgery	20	4	16
Orthopedics	9	4	5
Neurosurgery	2	1	1
Urology	7	4	3
Otolaryngology	4	3	1
Otolaryngology and ophthalmology	1	1	0
Anesthesiology	9	5	4
Radiology	25	16	9
Medicine, total	87	8	79
General medicine	86	7	79
Dermatology and syphilology	1	1	0
Pathology	26	17	9
Physical medicine and rehabilitation	16	13	3
Tuberculosis	11	5	6
Psychiatry and neurology, total	171	29	142
Psychiatry	144	17	127
Mental hygiene	13	7	6
Neurology	14	5	9

[1] Includes only those position vacancies for which assistance is desired in recruiting and which can be filled within the station's budget allocation.

TABLE VI.—*Staffing shortages for psychiatrists in VA hospitals* [1]

NP HOSPITALS

	Feb. 28, 1951	Feb. 28, 1952	Feb. 28, 1953	Feb. 28, 1954	Feb. 28, 1955	Mar. 31, 1956
APA requirements [2]	501	503	508	517	541	548
Physicians on duty [3]	290	317	327	271	269	258
Shortages NP hospitals	211	186	181	246	272	290

GM AND S HOSPITALS

APA requirements [2]	180	180	180	221	251	318
Physicians on duty [3]	152	152	152	184	215	244
Shortages GM & S hospitals	28	28	28	37	36	74

ALL VA HOSPITALS

Total requirements	681	683	688	738	792	866
Total physicians on duty	442	469	479	455	484	502
Total shortages	239	214	209	283	308	364

[1] Based on Standards for Hospitals and Clinics, 1956 edition, published by the American Psychiatric Association, Mental Hospital Service (personnel ratios for public mental hospitals are quoted: "1 to 30 patients for the admission and intensive treatment service, and 1 to 150 patients for the continued treatment service." General hospitals with psychiatric services "1 to 20 patients").

[2] Requirements based on APA standards apply to average daily patient load for patients classified as psychiatric. Excludes neurologic patients.

[3] Figures do not include career physicians undergoing residency training. (For NP hospitals do not include managers and directors of professional services.)

TABLE VII.—*Vacancies for full-time department of medicine and surgery personnel*

Organizational segment	June 1951	June 1952	June 1953	June 1954	June 1955	May 1956
Administrative:						
Manager	1	----	0	0	0	0
Medical officer	0	----	0	1	4	1
Director, professional services	5	6	9	3	3	9
Outpatient	2	1	1	0	0	0
Director, professional education	----	1	0	1	1	2
Total administrative	8	8	10	5	8	12
Surgery:						
General surgery	22	27	30	16	24	23
Orthopedics	19	14	17	16	12	16
Neurosurgery	0	3	0	1	5	4
Thoracic surgery	1	3	1	1	1	0
Urology	7	5	8	2	3	9
Otolaryngology	4	3	4	2	0	0
Ophthalmology	1	3	3	0	0	0
Otolaryngology and ophthalmology	21	9	4	2	2	2
Anesthesiology	16	15	13	7	9	10
Paraplegia	4	2	0	0	0	0
Total surgery	95	84	80	47	56	64
Radiology	15	17	24	14	20	25
Medicine:						
General medicine	111	87	90	39	53	54
Allergy	1	----	0	0	0	0
Dermatology and syphilology	0	----	0	0	0	1
Total	112	87	90	39	53	55
Pathology	16	21	20	21	9	17
Physical medicine and rehabilitation	11	12	10	10	16	15
Tuberculosis	39	54	47	23	9	14
Psychiatry and neurology:						
Psychiatry	103	138	126	81	111	113
Mental hygiene	13	12	7	10	6	13
Neurology	12	14	12	7	8	14
Total	128	164	145	98	125	140
Grand total of physicians	424	447	426	257	296	342

103. Medical Education in the United States and Canada. Journal of the American Medical Association 159: 578, October 8, 1955. (Reproduced below).

Number of new and old authorized and budgeted unfilled full-time positions by departments in the medical and basic sciences schools of the United States, 1955–56

	New	Old	Total
Basic sciences departments:			
Anatomy	3	15	18
Biochemistry	2	6	8
Microbiology	8	7	15
Pathology	9	24	33
Pharmacology	4	15	19
Physiology	6	9	15
Total	32	76	108
Clinical departments:			
Anesthesiology	5	5	10
Dermatology	1		1
Internal medicine	15	13	28
Neurology	1	1	2
Neurology and psychiatry	10	11	21
Obstetrics and gynecology	9	7	16
Opthalmology	1	1	2
Otolaryngology		2	2
Pediatrics	8	4	12
Physical medicine	2	2	4
Preventive medicine	11	3	14
Radiology	6	2	8
Surgery	12	10	22
Urology	1		1
Total	82	61	143
ANALYSIS OF FACULTY RANK OF VACANCIES			
Basic sciences departments:			
Full professors	3	11	14
Associate professors	7	13	20
Assistant professors	12	22	34
Instructors	10	26	36
Associates		1	1
Assistant instructors		3	3
Total	32	76	108
Clinical departments:			
Full professors	18	21	39
Associate professors	20	12	32
Assistant professors	29	16	45
Instructors	12	12	24
Assistants	2		2
Associates	1		1
Total	82	61	143
Grand total	114	137	251

See also Mobilization and Health Manpower, Report to the Director of the Office of Defense Mobilization by the Health Resources Advisory Committee, 1955, pages 31–34 (reproduced below).

Staffing of Medical Schools

A basic problem in the increase or even the maintenance of medical school enrollment is the maintenance of teaching staff in those schools. Medical schools find it difficult to maintain adequate staffs. The problem is an intricate one, with financing and the shortage of qualified health manpower both playing an important part.

In 1951, the Health Resources Advisory Committee in cooperation with the Association of American Medical Colleges made a detailed study of the staffing of medical schools in the United States. This gave a comprehensive national picture of the numbers and distribution of faculty members, and of their potential liability for military service. The following is a summary of this study.

A staff of 15,563 teachers and research workers, including almost 14,000 physicians, held faculty appointments in 72 4-year medical schools and 7 schools of the basic sciences (first 2 years of medical education) in the United States in February 1951.[1] Total enrollment in these schools was about 26,000 but many of the faculty members were responsible as well for graduate education of physicians and for some teaching of nurses and other health personnel.

Most medical schools rely heavily upon part-time personnel, especially for instruction in clinical subjects. In the 1951 survey, medical faculties included 3,933[2] members with full-time and 11,630 members with part-time appointments. Eighty percent of the physician faculty members were serving on a part-time basis, and 32 percent of the nonphysician faculty members.

Many of the 11,630 part-time faculty members devoted relatively little time to teaching. More than half of them gave less than 300 hours per year to medical school activities. (See chart 9.)

[1] Including all faculty members, exclusive of residents, with rank of instructor or higher who devoted 25 hours or more annually in teaching, research or administration at a medical school.

[2] For purposes of this study, persons who reported 1,920 hours a year or more were considered as having full-time appointments (40 hours a week, 48 weeks a year).

Chart 9

MEDICAL SCHOOL FACULTY MEMBERS DISTRIBUTED BY TOTAL ANNUAL HOURS, FEBRUARY 1951

The patterns of part-time employment vary sharply from school to school. At one extreme is the school in which part-time teachers comprise 95 percent of the total faculty, while at the other is the school in which only 6 percent of the faculty is on a part-time schedule.

The use of part-time faculty is related in general to the size of the city in which the school is located. With few exceptions, schools in small communities use a high proportion of full-time faculty.

Percent of faculty time contributed by full-time medical school staff by size of city, 1951

Population of city:	*Percent of faculty time contributed by full-time staff*
1,000,000 and over	51
100,000 to 999,999	65
Less than 100,000	71

Age and sex of faculty.—In general, younger faculty members worked longer hours at medical schools than older teachers. Many more of them held full-time appointments.

It also is the younger physicians who carry on the major share of research at medical schools. More than 70 percent of the physicians engaged in research for 1,000 hours per year or more were 40 years or younger.

About 5 percent of all physicians are women and approximately this same percent of all physician teaching time at medical schools is provided by women physicians.

Medical school staffing standards.—The Joint Committee on Medical Education in Time of National Emergency has proposed a national emergency staffing standard of 1 equivalent full-time faculty member for every 4 preclinical students and 1 equivalent full-time faculty member for every 3 clinical students—29 equivalent full-time faculty members per 100 students. Only 21 of the 72 4-year medical schools reported staffing which met this standard.

In practice, wide differences exist in the scope of the educational programs and research activities conducted by medical schools. These differences are products of the diverse circumstances and budgets under which the schools operate as well as their differing objectives. Some schools, for example, give very much more attention than others to the conduct of research and to the advanced training of specialists, medical educators, and research workers. These differences are reflected in wide variations in faculty-student ratios among the schools.

Faculty shortages.—The average 4-year medical school was staffed with 26 full-time equivalent faculty members per 100 students in February 1951. The most heavily staffed school reported 62 full-time equivalent faculty members per 100 students, while the low school had only 10 per 100.

Even allowing for differences in objectives and programs, it is apparent that many schools are operating with a serious shortage of faculty members.

In view of the need for maintaining a high level of enrollment, and for maintaining and bettering the caliber of teaching, the shortages of teaching staffs are important, and point up the necessity of protecting teaching staffs in a mobilization period.

The most recent specific report on this subject is found in the 1953 Education Number of the American Medical Association [3] which states that for the school year 1953 the number of unfilled full-time positions in the instructional staffs of medical schools was 283, distributed as follows:

	Unfilled full-time positions
Total	283
Preclinical departments	120
Pathology	34
Anatomy	18
Physiology	18
Physiological chemistry	16
Pharmacology	15
Other	19
Clinical departments	163
Pediatrics	30
General surgery	28
Psychiatry	25
Internal medicine	23
Obstetrics and gynecology	16
Other	41

This can be considered a minimal estimate of needs in this area since it does not take into account demands for new schools, nor does it include unfilled part-time positions, and the already existing short staffing of many schools, made necessary by budgetary considerations.

Comparison with 1942.—Data available from a study made by the Procurement and Assignment Service of the War Manpower Commission in 1942 (at which time 42,000 physicians were in military service) indicate that faculty student-ratios were then very slightly better than at the present time.

The average approved 4-year medical school in 1942 reported 325 students and a faculty of 210 individuals. Its 1951 counterpart had 350 students and a faculty of 215 full-time and part-time members.

Thus, in the 9-year period the average school increased its students by 8 percent, its faculty by only 2 percent.

The numbers and hours of part-time faculty apparently were about the same in 1951 as in 1942.

Military status of faculty members.—In 1951, 497 faculty members, 3 percent of the total, were in priorities I and II. Primarily younger men, they supplied about 5 percent of total faculty time.

One-fifth of the total faculty, 3,178 physicians, were in priority III. They made up 19 percent of the equivalent full-time staff.

Almost 6,700 physicians, 43 percent of the medical school faculty members, were veterans in priority IV. This group made up 36 percent of the full-time equivalent staff.

[3] Journal of the American Medical Association, vol. 153, No. 2 (September 12, 1953) p. 132.

Not liable for registration under the "Doctor-draft" law were 5,163 teachers and research workers, constituting 40 percent of the equivalent full-time staffs of medical schools. This group included women, over-age and alien physicians, as well as faculty members in professions other than medicine and dentistry.

Thus, on an overall basis, only 5 percent of the teaching in medical schools was being done by men who were in priorities I and II. An even smaller group, 4 percent, was classified in priority III and under 40 years of age.

The small proportion in the vulnerable groups, however, does not give a true picture of the impact upon teaching institutions of calling up these men for military service. Changes in medical practice have been reflected in the development of new specialties and new research interests. The younger men are concentrated, to a significant extent, in the newer specialties and in certain preclinical fields. Men in priorities I and II and the men in priority III who were under 40 years provided over 10 percent of the teaching in pathology and pharmacology, in the preclinical fields, and in medicine, pediatrics, radiology, and anesthesiology, surgery, and neurosurgery.

Discussion.—The need for giving special protection to medical school faculties has been specifically recognized in the new draft law, which provides:

> The National Advisory Committee in conjunction with the State and local volunteer advisory committees are further authorized to make appropriate recommendations with respect to members of the faculties of medical, dental, veterinary, and allied specialists schools, schools of public health and with respect to physicians, dentists, and veterinarians engaged in essential laboratory and clinical research, having due regard to the respective needs of the Armed Forces and the civilian population.

So far, the mobilization of physicians has had a relatively slight impact on medical schools, and it has been possible by the established appeal procedures to delay calls to duty for the most essential teachers.

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104. Committee on Rural Medical Service, American Medical Association. Extension of Rural Medical Service. Chicago, Ill. The Association, 1947. See also questions 90 and 143–151.

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105. Medical Education in the United States and Canada. Journal of the American Medical Association 159: 570, October 8, 1955.

106. National Manpower Council. A Policy for Scientific and Professional Manpower. New York, Columbia University Press, 1953, pages 219–241; and reply to staff outline received from Manufacturing Chemists' Association, Inc. (reproduced below). See also question 133.

MANUFACTURING CHEMISTS' ASSOCIATION, INC.,
Washington, D. C., November 29, 1956.

Mr. KURT BORCHARDT,
Interstate and Foreign Commerce Committee,
House Office Building, Washington, D. C.

* * * * * * *

1. In relation to the number of persons trained in biological sciences and employed in the chemical industry, etc.,

According to the National Science Foundation report, Science and Engineering in American Industry, published in October, 1956, page 72, as of January 1, 1954, there were an estimated 3,500 life scientists engaged in research and development in United States industry. Of these, 2,200 were employed in the chemicals and allied products industry. It is our understanding that a large number of these would be employed by pharmaceutical manufacturers. This number does not include the medical doctors employed to care for the employees' health. No data on trend here.

* * * * * * *

Sincerely,

WILLIAM E. CHACE,
Director of Education.

Building America's Health. America's Health Status, Needs and Resources, Volume 2. A Report to the President by the President's Commission on the Health Needs of the Nation [1953], pages 183–185.

IMPROVED AND INCREASED HEALTH PERSONNEL

Physicians

Physicians and other health workers recognize that the United States lacks pediatricians, psychiatrists, specialists in pulmonary medicine and in physical medicine and rehabilitation, pathologists, radiologists, anesthesiologists, physicians in the fields of industrial medicine and public health, and well-trained general physicians. Medical schools need more faculty members. Many of the people who appeared at the Commission's hearings also testified to the shortages of physicians.

Needs have been more precisely estimated in some fields of service than others. It is easier, obviously, to measure demand in salaried fields than in private practice.

In the field of public health, the Public Health Service now requires some 100 additional physicians and expects to need almost a thousand more by 1960. State and local health departments already have almost 500 vacant positions, and it is estimated that almost 1,800 more physicians would be needed to provide adequate local public health services.

For industrial medicine, a subcommittee of the council on industrial health of the American Medical Association has indicated that by 1953 some 1,600 additional full-time (or equivalent) physicians would be needed simply to provide for new workers in defense industry. This estimate was based on the committee's recommendation that a typical defense plant with 10,000 employees and moderate hazard should have 4 physicians—a ratio of 1 physician to 2,500 workers. Many more physicians would be needed to remedy existing deficiencies throughout industry.

Mental hospitals probably need about three times as many physicians as they now have, or about 4,000 additional doctors. This estimate is based on a staffing standard proposed by the American Psychiatric Association in 1945. The association suggested that mental hospitals should have 1 physician for each 100 admissions per year, plus 1 physician for each 200 resident patients at the end of the year. Mental hospitals admitted some 300,000 patients last year, and the census of these mental hospitals stands now at about 700,000 persons. In 1949, this association revised its standards to differentiate between various types of mentally ill patients. But data on types of patients in hospitals are not yet exact enough to allow estimates of total needs on the new basis.

For the staffing of tuberculosis hospitals, the American Trudeau Society has recommended as a minimum standard at least 1 full-time physician for the first 100 resident patients and 1 additional full-time physician for each 50 (or portion of 50) additional patients. This standard, which was developed in 1945 on the basis of treatment methods current at that time, would indicate a total need for some 1,500 physicians, or about 500 in addition to the present supply. If levels in the better hospitals are not to be brought down to the minimum standard, the total need is greater than these figures suggest. Also, new methods in treatment of tuberculosis may be adding to physician requirements.

Medical schools have between 200 and 500 unfilled faculty positions, most of them for physicians. About 50 schools, or almost two-thirds of the total, have staffs smaller than the accepted standard of 1 faculty member to 4 preclinical students and 1 member to 3 clinical students. To bring these schools up to standard for clinical departments alone would require the equivalent of 600 full-time physicians. This makes no allowance for clinical faculty in new schools about to be opened; the average-sized school needs about 50 physicians in clinical fields. Further physicians would be needed to help staff preclinical departments.

Data from prepayment plans and other studies indicate that to provide adequate medical care to individuals requires on the average about 1 physician for each 1,000 people.

In the following paragraphs six estimates of total physician requirements are presented. They are projected to 1960, for a population of 171,176,000—the Census Bureau's medium population forecast. These estimates are based on a series of assumptions, ranging from maintaining the status quo to bringing to all areas the proportion of doctors now available only in the most favored areas.

Premise 1.—That in 1960 we should have the same overall physician-population ratio as in 1940—133 physicians per 100,000.

To maintain this level in 1960 would require 227,000 physicians.

Premise 2.—That in 1960 we should have the same physician-population ratio as 1949—135 per 100,000. This would require a total of 231,000 physicians.

Premise 3.—That in 1960 we should have the same civilian physician-population ratio as 1949 and also meet military needs for somewhat larger Armed Forces, expand personnel in industry, public health, medical-school faculties, and civil defense so as to meet defense needs.

This is the set of assumptions adopted by the Health Resources Advisory Committee of the Office of Defense Mobilization. Its estimated requirement for 1960 (adjusted to include retired physicians) was for 244,000 physicians.

Premise 4.—That in 1960 we would need enough physicians to:

(1) give direct care to the civilian population at a rate of 1 physician per 1,000 population—which would require about 188,000 physicians, as indicated in table 32; and

(2) maintain present levels of intern and resident training and service in hospitals, meet standards for public health, industrial service, mental and tuberculosis hospitals, and medical schools, and meet the requirements of the Armed Forces at present staffing levels, which would require another 75,000 physicians.

This fragmented approach to medical-care requirements has certain shortcomings of duplication (full-time faculty members and hospital house staffs giving medical care, for example). On the other hand, however, it very much understates needs in certain categories of service (psychiatry, rehabilitation, and industrial medicine, for example).

The total requirements for physicians to provide this standard of service would add to 263,000 in 1960.

TABLE 32.—*Physician requirements for direct care, 1960, premise 4*

[Physicians required to give direct medical care to the civilian population, at a standard of 1 physician per 1,000 population in areas now below that level, and to maintain 1949 ratios in all other areas]

Region	Physicians in private practice per 1,000 population		1960 population (thousands)	1960 physician requirements
	1949	1960 standard		
Total	1.02	1.10	171,176	188,281
New England	1.22	1.22	10,216	12,463
Central Atlantic	1.30	1.30	39,543	51,405
Southeast	.70	1.00	35,824	35,824
Southwest	.85	1.00	12,930	12,930
East North Central	.99	1.00	34,481	34,481
West North Central	.93	1.00	14,989	14,989
Rocky Mountain	1.03	1.03	4,015	4,135
Far West	1.15	1.15	19,177	22,054

TABLE 33.—*Total physician requirements, 1960, premise 4*

Area of service	Physician requirements
Total 1960 requirement	263,000
Direct care (see table 32 for detail)	188,000
Public health	6,000
Industrial medicine	3,500
Mental hospitals	8,000
Tuberculosis hospitals	1,500
Military, present troop strength—Physicians required above those needed for this number of persons in civilian life	10,000
Interns and residents in hospitals	25,000
Medical schools, schools of public health, research (full-time equivalents)	6,000
Other services (insurance, etc.)	4,000
Retired and not in practice.[1]	11,000

[1] The "retired and not in practice" figure given here is comparable to that in the 1950 AMA Directory.

Premise 5.—That a reasonable goal in terms of present standards of service would be to bring the lower regions of the country to the 1949 national average ratio of 131 physicians per 100,000 civilian population (including private practice, institutional service, teaching, public health, industry, Veterans' Administration, and retired—excluding only physicians in the Armed Forces) and to meet the needs of the Armed Forces at present levels.

The total requirement figure, at that level, would be 255,000 physicians. (See table 34.)

TABLE 34.—*Total physician requirements, 1960, premise 5*

Region	Total physicians per 100,000 population		1960 population (thousands)	1960 physician requirements
	1949	1960 standard		
Total	131	149	171,176	255,487
New England	164	164	10,216	16,754
Central Atlantic	167	167	39,543	66,037
Southeast	92	131	35,824	46,929
Southwest	103	131	12,930	16,988
East North Central	125	131	34,481	45,170
West North Central	122	131	14,989	19,635
Rocky Mountain	131	131	4,015	5,259
Far West	150	150	19,177	28,765
Military (requirements in excess of civilian ratios)				10,000

Premise 6.—Another approach to estimating need is to assume that the overall physician-population ratio achieved by a wide area with a long history of a generally high economic and education level and with a relatively good supply of health facilities is a reasonable goal for the rest of the country.

The area of New England and the Central Atlantic States had in 1949 an average ratio of 166 physicians per 100,000 civilian people.

To serve the expected 1960 civilian population at that rate and to meet military needs would bring the total need to 292,000.

These six estimates for physicians are summarized below:

TABLE 35.—*Total physician requirements, 1960, 6 premises*

Premise	Total physician requirements
1. Maintaining 1940 gross physician-population ratio	227,000
2. Maintaining 1949 physician-population ratio	231,000
3. Maintaining 1949 civilian population ratio, meeting military and other mobilization needs (based on Health Resources Advisory Committee estimate)	244,000
4. Meeting certain specified standards of service	263,000
5. Bringing low regions and population increase up to 1949 average civilian physician-population ratio, and meeting military needs	255,000
6. Bringing all regions to 1949 civilian physician-population ratio for New England and the Central Atlantic States, and meeting military needs	292,000

The expected number of physicians in 1960 is 233,000. Thus, in 1960, taking into account the expected increase in graduates, the total number of physicians will just about maintain 1949 gross physician-population ratios.

It is apparent that even if there were no other barriers, the shortage of physicians in itself will set a sharp limit to the extent to which better medical service can be provided in the next decade. Increasing the number of physicians to a level at which minimum standards can be met in all parts of the country must be considered as a long-range job. As has been pointed out, increased production of physicians will require more faculty members and more facilities. Even with adequate financing, this will take many years.

For the immediate future, we must not only plan this long-range job, but consider the means of improving utilization of presently available physicians, improving the utilization and increasing the numbers of auxiliary workers, and developing effective methods of bringing physicians into understaffed areas, both geographic and in certain fields of practice.

To accomplish this, it will be necessary to give medical students an understanding of the challenge of opportunities for service, to provide more adequate and attractive facilities and educational opportunities, to make consultant service more generally available, to develop methods of giving some financial security and incentive to physicians in these areas and to increase the use of auxiliary personnel. These needs, in turn, go back to the problem of the organization of medical service and facilities.

COMMENTS SUBMITTED BY KENNETH WILLIAMSON, DIRECTOR, WASHINGTON SERVICE BUREAU, AMERICAN HOSPITAL ASSOCIATION

With respect to the questions and answers relating to the number of physicians available to meet the medical needs of the public, it is not sufficient to indicate the number of students in medical schools or graduates—it is necessary to know how many of the students and graduates actually practice medicine. Nor is it meaningful to know the number of physicians licensed in the United States without knowing the number of physicians actively engaged on a full-time basis in the practice of medicine and who are available to the public. The well-established fact that a substantial number of the total number

of licensed physicians are engaged in industrial medicine, Government medicine, research, medical education, administration, and other related activities in the health field, must be taken into account in determining the total number of licensed physicians available to serve the needs of the American public. Such physicians are not generally available to the public for medical care. Hence, these physicians should not appropriately be included in figures reflecting the ratio of practicing physicians to population.

It is my understanding that a number of States have studied the availability of physicians within the State in particular, and I recall a study made by the Medical Society in Virginia. That study went into such areas as the elimination of a considerable number of physicians for one reason or another, and the half-time or less activity of others, concluding that such factors reduced the total number of physicians which it is generally assumed are available to serve the public.

All of this, of course, seriously questions the usefulness of simply taking the total population and dividing it by the total number of licensed physicians or medical school graduates, to arrive at a relationship of physicians to population.

See also questions 80–82.

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107. Medical Education in the United States and Canada, Journal of the American Medical Association, 161: 1645, August 25, 1956 (reproduced below).

MEDICAL SCHOOL FINANCING AND ESTIMATED 1956–57 RESOURCES AND BUDGETS

Data submitted in the questionnaire replies from which statistical information for this report was obtained indicate that, in keeping with the trend over the past several years, there has been further augmentation in the projected 1956–57 total overall basic medical school operating budgets as compared to those projected last year for 1955–56. In this report the "basic medical school operating budget" is restricted to funds utilized for the operating activities of the school exclusive of appropriations for hospital and/or clinic operation and maintenance or grants-in-aid from outside sources for research or teaching. This basic operating budget, which represents information from 76 approved 4-year schools and 6 approved schools of basic medical science is projected as $111,167,673. For 75 approved 4-year schools and 6 approved schools of basic medical science the projected 1955–56 basic operating budget was $98,012,621. The 1956–57 projection, therefore, represents a differential increase of $13,155,052, with the addition of only one 4-year medical school.

Forty-eight medical schools report estimated basic operating budget funds from governmental (State, municipal, Federal) sources totaling $52,701,162 (47.5 percent) for 1956–57 as compared to $47,727,835 (48.7 percent) in 1955–56. Anticipated endowment income is reported from 50 medical schools as approximately $12,775,283 (11.5 percent) as compared to $10,358,181 (10.6 percent) for 47 institutions reporting such sources for 1955–56. Tuition income represents a relatively

smaller percentage of the total estimated operating budget resource for 1956–57 and will constitute $20,305,535 (18.2 percent) as compared to $19,210,304 (19.2 percent) for the past year. Thirty-five medical schools estimate a total of $7,507,980 (6.7 percent) from general university fund allocation as compared to $6,286,416 (6.3 percent) the previous year. Estimated gifts, grants, and other sources reported by 78 schools this year represent $17,877,713 (16.1 percent) as compared to $14,429,885 (15.2 percent) in 1955–56. Table 4 presents these data in summarized form.

TABLE 4.—*Estimated sources of basic medical operating budgets, 1956–57*

Source of funds	Number of schools	Amount	Percent of total
Government (State, municipal, Federal) appropriation	48	$52,701,162	47.5
Endowment	50	12,775,283	11.5
Tuition income	79	20,305,535	18.2
General university funds	35	7,507,980	6.7
Gifts, grants, and other sources	78	17,877,713	16.1
Total		111,167,673	100.0

As was indicated in the last presentation of data on anticipated medical school budgets covering basic operations, it is important for the reader to appreciate the fact that this summarization constitutes a general picture of the source of total funds in each category in relation to the total projected 1956–57 basic operating budget for all of the schools. The percentage allocations, therefore, do not reflect the actual distribution of sources of financing within the individual schools but represent a pooled composite. This fact will be further

TABLE 5.—*Estimated funds available to medical schools, 1956–57*

[Exclusive of funds available for construction and operational costs of major clinical facilities]

Category:	Amount
Basic budgeted funds and appropriations (table 4)	$111,167,673
Research grants from outside sources	58,435,518
Teaching grants from outside sources	9,047,269
Total	178,650,460

clarified by noting that in table 4, 34 of the 82 schools receive no basic operating funds from governmental sources, 32 have no endowment income, and only 35 reported allocations from general university funds. Furthermore, in some of the State institutions, appropriations from governmental sources constitute the major source of all basic operating funds, while, in some of the private schools, tuition and endowment constitute the greatest sources of anticipated income.

Table 5 summarizes the overall estimated funds available to medical schools for the 1956–57 period and includes research grants and teaching grants from outside sources as well as basic operating budgets. There is a further increase in anticipated estimates for support of both research and teaching grants during the 1956–57 period as compared to the previous year. Seventeen of the medical schools estimate research grants from outside sources in excess of $1 million. Of these, 8 institutions anticipate such support in excess of $2 million and 2 of this group indicate estimates of over $3 million. Teaching grants

from outside agencies vary from $25,000 to $400,000. Seventy-five of the 76 approved 4-year schools and the six 2-year schools of basic medical sciences will be recipients of both research and teaching grants from outside sources during 1956–57. The single exception is one of the State-supported schools, which receives over $300,000 in grants from outside sources supporting research but which has no grants from outside sources in support of teaching programs.

Also reply to staff outline received from American Medical Association (reproduced below).

PRESENT COSTS AND FINANCING OF OPERATIONS OF INDIVIDUAL INSTITUTIONS

In the table below (taken from Council on Medical Education and Hospital's Annual Report on Medical Education in the United States and Canada, 1955–56, and 1954–55) the basic operating budget is restricted to funds utilized for the operating activities of the school exclusive of appropriations for hospital and/or clinic operation and maintenance or grants-in-aid from outside sources for research or teaching. Teaching and research grants (largely from the Federal Government) are noted under "Other Estimated Funds Available."

Estimated sources of basic operating budget

Source	1956–57	1955–56	1950–51
1. Government (State, city, Federal)	$52,701,162	$47,727,835	(1)
2. Endowment	12,775,283	10,358,181	(1)
3. Tuition	20,305,535	19,210,304	$15,200,000
4. General university funds	7,507,980	6,286,416	(1)
5. Gifts, grants, and other sources	17,877,713	14,429,885	30,250,000
Total	111,167,673	98,012,621	67,500,000

Other estimated funds available

Research grants from outside sources	$58,435,518	$54,470,989	
Teaching grants from outside sources	9,047,269	7,035,905	
Total	67,472,787	61,506,894	

[1] Distribution not available; figures are included in total.

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108. Public Health Service, estimated as follows:

(*a*) Survey of Current Business 36:21, July 1956. Table 30 shows personal consumption expenditures in 1955 of $12,500 million for medical care and death expenses. For medical care expenses the amount is $11,272 million.

(*b*) Social Security Bull. 19:6, October 1956. Social-welfare expenditures for health, under civilian public programs, fiscal year 1955, amounted to $4,676.9 million less $419.8 million for construction, or $4,257.1 million.

(*c*) The sum of $11,272 million and $4,257.1 million is $15.5 billion as shown in question 108.

(*d*) The operating budgets of medical schools in 1956–57 was $111 million as shown in question 107, which is less than 1 percent of the $15.5 billion.

[Survey of Current Business 36:20-21, May 1956.]

Medical Care

Perspective on personal expenditures for medical care service is enhanced by considering them in the framework of the Nation's total medical care expenditures, including both services and commodities.

It is estimated that, aside from construction costs and expenditures by industry, about $14 billion was spent from public and private funds for health and medical care supplied the civilian population in 1954. Of this amount, consumer expenditures represented about 76 percent and Government expenditures 24 percent. The Government portion—covering Federal, State, and local expenditures, inclusive of veterans, maternal and child health care, and research—had grown from 12 percent in 1929 and 19 percent in 1947.

Services accounted for $8.4 billion of the $10.6 billion spent by consumers in 1954 for medical care. Of total consumer expenditures in this area, privately controlled hospitals and physicians' services comprised 54 percent; administrative and other net costs of medical care and insurance, including accident and health insurance, 10 percent; dentists' services, 9 percent; and other professional services, 6 percent. Commodities accounted for the remaining 21 percent. The service total described here differs from that shown in table 1 for 1954 in that it does not include $1.2 billion for funeral and burial expenses.

Expenditures for physicians' services tripled and those for dentists' services doubled from 1929 to 1954, with something under half of the increase in each case occurring after 1947. Both the overall increase and the postwar increase in physicians' services differed but little from the percentage change in total consumer expenditures, while the advances in expenditures for dental services were much smaller in each period. The series on expenditures for physicians' services currently represents approximately nine-tenths, and that for dentists nearly all, of the total gross income received by physicians or dentists from independent practice.

The Census of Population reported a decline in the numbers of doctors and dentists in independent practice between 1940 and 1950, although the number in salaried work and the total numbers increased.

Total operating expenses of all hospitals, as reported by the American Hospital Association, amounted to $5.2 billion for the year ending September 30, 1954, with the total about equally divided between governmental (including military) hospitals and nongovernmental hospitals; only the latter are included in personal consumption expenditures.

Privately controlled hospitals, which have 30 percent of the total bed capacity, are for the most part nonprofit and are principally devoted to the care of illnesses requiring short-term hospitalization. Long-term care, such as is required for nervous and mental cases, and tuberculosis, is provided mainly by Government hospitals.

Data on personal consumption expenditures for privately controlled hospitals and sanitariums measure the sum of the operating expenses (including depreciation) of nonprofit hospitals and payments by patients to proprietary hospitals; they differ little from operating expenses (including depreciation) of all private hospitals.

The hospital-care item has shown one of the strongest trends among all the large items of consumer expenditures. It has increased more

TABLE 1.—*Personal consumption expenditures for services, by major expenditure categories, for selected years*

[Billions of dollars]

	1929	1933	1937	1941	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	Percent change		
																	1929–55	1945–55	1947–55
Total services	32.1	20.7	25.1	29.0	37.7	40.4	46.2	51.3	56.7	60.1	65.0	70.1	75.7	81.8	86.4	91.2	184	126	78
Clothing, accessories, and jewelry	1.3	.6	.9	1.2	1.8	2.0	2.5	2.7	2.8	2.8	2.8	3.0	3.1	3.2	3.2	3.2	153	60	19
Personal care	.5	.3	.5	.6	.8	.9	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.2	1.3	1.4	167	56	39
Housing	11.4	7.9	8.4	10.0	11.9	12.4	13.6	15.4	17.5	19.4	21.4	23.4	25.6	27.9	29.8	31.2	173	151	102
Household operation	4.0	2.8	3.7	4.3	5.9	6.4	6.7	7.4	8.0	8.5	9.4	10.3	11.1	12.1	12.6	13.6	237	112	85
Medical care and death expenses	2.8	1.9	2.5	2.9	4.0	4.3	5.2	6.0	6.5	6.9	7.4	7.8	8.4	9.0	9.6	10.1	260	137	69
Personal business	5.1	2.9	3.7	3.9	4.1	4.4	5.0	5.7	6.6	7.1	8.2	8.7	9.4	10.6	11.4	12.5	146	182	119
Transportation	2.6	1.5	2.0	2.4	3.7	4.0	5.1	5.5	5.9	5.8	5.8	6.4	6.8	7.3	7.3	7.4	189	84	35
Recreation	1.7	1.1	1.6	1.8	2.7	3.0	3.7	3.8	3.8	3.9	3.9	4.1	4.2	4.4	4.6	4.9	189	64	29
Private education and research	.7	.5	.6	.7	1.0	1.0	1.2	1.4	1.6	1.8	2.0	2.1	2.3	2.4	2.6	2.8	322	187	98
Religious and welfare activities	1.2	.9	.9	1.1	1.7	1.7	1.9	2.0	2.3	2.3	2.5	2.6	2.9	3.0	3.2	3.4	184	96	67
Expenditures and remittances abroad	.9	.4	.6	.3	.4	.4	.7	.8	.9	1.0	1.1	1.1	1.3	1.4	1.4	1.5	63	249	96
Adjustment for foreigners' expenditures in the United States	−.1	−.1	−.1	−.1	−.2	−.2	−.3	−.4	−.3	−.4	−.4	−.5	−.6	−.6	−.6	−.7	393	245	85
Addendum:																			
Total personal consumption expenditures	79.0	46.4	67.3	81.9	109.8	121.7	146.6	165.0	177.6	180.6	194.0	208.3	218.3	230.6	236.5	252.3	220	107	53
Disposable personal income	83.1	45.7	71.0	93.0	146.8	150.4	159.2	169.0	187.6	188.2	206.1	226.1	236.7	250.4	254.8	269.3	224	79	59

Source: U. S. Department of Commerce, Office of Business Economics.

than any of the other medical care services since 1929, and by 1954 was 600 percent above 1929 and double the 1947 level.

Patient income (including amounts paid by insurance plans) equaled 90 percent of the income of nonprofit short-term general and special hospitals in 1954—the remainder coming from gifts and bequests, and from grants, including Government payments.

The number of admissions to nonprofit short-term general and special hospitals increased from 10.9 million in 1947 to 13.5 million in 1954 and the average length of stay declined from 8.1 to 7.5 days. The expense per patient day rose 93 percent and reached nearly $23 in 1954 as compared to almost $12 in 1947. However, because the average length of stay had declined, the expenditure per patient stay showed less of an increase—79 percent. During this period, a constantly rising percentage of hospital bills was met by insurance.

Personal consumption expenditures for medical care and death expenses include the net costs of medical-care insurance, as measured by the excess of insurance premiums paid over the total benefits received by the insured. This excess represents mainly the administrative costs of the insurance programs and covers some services rendered by physicians in prepayment medical service plans. It covers voluntary private insurance against medical-care costs and income loss due to illness provided by commercial plans, Blue Cross, Blue Shield, and other nonprofit plans, and private group clinics with prepayment plans. Total subscription charges or premiums earned amounted to $3.8 billion, while benefits paid reached $2.8 billion in 1954. Of the benefits $2.2 billion were for medical care (about two-thirds for hospitals and one-third for physicians' services) and $0.6 billion for income loss. It is estimated that in 1954 slightly less than half of hospital receipts from patients and about one-quarter of physicians' receipts from patients were covered by insurance.

Medical care insurance has expanded greatly in the postwar years, and the net claims series represents one of the most rapidly rising components of personal consumption expenditures.

109–112. Medical Education in the United States and Canada, Journal of the American Medical Association 161: 1645, August 25, 1956; 144: 128, September 9, 1950. See question 107.

113, 114. Medical Education in the United States and Canada. Journal of the American Medical Association, 161: 1642, 1645, August 25, 1956; and National Fund for Medical Education. Memorandum re Questionnaire on Teaching Budgets of the 81 Medical Schools. December 31, 1955. 6 pp.

Reply to staff outline received from American Medical Association (reproduced below).

NATIONAL FUND FOR MEDICAL EDUCATION,
New York, N. Y., October 30, 1956.

Mr. KURT BORCHARDT,
Legal Counsel, Committee on Interstate and Foreign Commerce, House Office Building, Washington, D. C.

DEAR MR. BORCHARDT: In reply to your letter of October 29, I am sending you herewith a memorandum dated December 31, 1955, which

concerns the findings on a questionnaire relative to the teaching budgets of the 81 accredited medical schools in the United States in operation as of December 31, 1955 The figures contained in this memorandum are 1955 figures and we would caution you that it is important to keep in mind that the figures are at best only a guide to the cost of undergraduate medical education in the United States during 1955.

As explained in the covering memorandum, there are wide variations in the accounting systems employed in the schools and the financial relationships between the teaching hospitals, the graduate schools, the research institutes, as well as the parent universities follow no set pattern. For this reason and other similar ones, across-the-board comparisons should be made with extreme caution.

If there is any further information that we can give you, please feel free to call on us.

Sincerely,

CHASE MELLEN, Jr.

REVISED MEMORANDUM—NATIONAL FUND FOR MEDICAL EDUCATION

Memorandum re questionnaire on teaching budgets of the 81 medical schools.

In July 1955, Dr. Vernon W. Lippard, president of the Association of American Medical Colleges, sent to each of the 81 medical-school deans a questionnaire asking for information concerning the sources of income from (1) tuition, (2) endowments, (3) parent universities, (4) private sources and donations, including alumni associations but excluding additions to the endowment fund, (5) public sources, and (6) any other sources.

Completed questionnaires have been received from all the 81 medical schools and the information thus gathered is set forth in the accompanying table. Column No. 1 lists the number of undergraduate medical students. Column No. 2 is the total teaching budget. Column No. 3 shows income per student. Column No. 4 is tuition income, and column No. 5 is the percent of the total teaching budget this represents. Columns Nos. 6 and 7 show the income from private sources and the percent of the total budget it represents. Columns Nos. 8 and 9 show income from tax sources and the percent of the total budget it represents.

The questionnaire specified that amounts received as teaching grants from the United States Public Health Service should be included as income from public sources.

It is important to keep in mind that these figures are, at best, only a guide to the cost of undergraduate medical education. There are wide variations in each school's accounting system and, for example, in their relationship with their teaching hospitals, graduate schools, and research institutions, as well as with the parent university. Across-the-board comparisons, therefore, should be made with extreme caution.

It is hoped that these figures will prove helpful to those interested in undergraduate medical school financing.

CHASE MELLEN, Jr.,
Executive Vice President.

Table setting forth the teaching budgets of the 81 accredited medical schools in the United States as compiled by the fund from questionnaires completed by each medical school in 1955

Medical school	Number of students (1)	Teaching budget (2)	Income per student (3)	Tuition and fee income (4)	Percent of total income (5)	Other income from private sources (6)	Percent of total income (7)	Income from tax sources (8)	Percent of total income (9)
Alabama: Medical College of Alabama	294	$961,696	$3,271	$129,377	13	$6,150	2	$826,169	85
Arkansas: University of Arkansas School of Medicine	314	1,849,941	5,891	127,941	7	316,000	17	1,406,000	76
California:									
College of Medical Evangelists	377	1,689,781	4,482	402,375	24	908,906	54	378,500	22
University of Southern California	270	785,000	2,907	255,000	32	480,000	61	50,000	7
Stanford University School of Medicine	242	880,000	3,636	215,000	24	630,000	71	35,000	5
University of California School of Medicine at San Francisco	325	2,543,000	7,824	65,000	2	38,000	1	2,440,000	97
University of California School of Medicine at Los Angeles	165	2,436,110	14,764	56,110	3			2,380,000	97
Colorado: University of Colorado School of Medicine	313	1,108,600	3,541	354,000	31	37,600	4	717,000	65
Connecticut: Yale University School of Medicine	315	1,279,750	4,062	262,513	20	872,260	68	144,977	12
District of Columbia:									
Georgetown University School of Medicine	440	755,156	1,716	398,700	52	248,000	32	108,456	16
George Washington University School of Medicine	374	724,857	1,938	378,930	52	264,535	37	81,392	11
Howard University School of Medicine	293	545,074	1,860	146,870	26	61,937	13	336,267	61
Georgia:									
Emory University School of Medicine	289	1,016,457	3,517	228,838	22	694,339	68	93,280	10
Medical College of Georgia	351	816,160	2,325	132,000	16	49,500	7	634,660	77
Illinois:									
Chicago Medical School	283	1,054,688	3,726	200,000	18	642,990	60	211,698	22
Northwestern University Medical School	517	1,536,867	2,972	512,995	33	954,272	62	69,600	5
Stritch School of Medicine	326	709,500	2,111	264,000	37	383,000	54	62,500	9
University of Chicago School of Medicine	279	3,404,408	12,202	450,566	12	2,853,715	83	100,127	5
University of Illinois College of Medicine	633	2,659,048	4,200	218,242	8	26,900	2	2,413,906	90
Indiana: Indiana University School of Medicine	588	[1] 1,480,353	2,517	185,600	12	635,000	5	1,231,253	83
Iowa: State University of Iowa College of Medicine	446	1,427,900	3,201	135,584	9	32,000	3	1,260,316	88
Kansas: University of Kansas School of Medicine	428	1,939,143	4,530	180,000	9	25,000	3	1,734,143	88
Kentucky: University of Louisville School of Medicine	381	948,729	2,490	302,116	32	128,493	13	518,120	55
Louisiana:									
Louisiana State University School of Medicine	425	1,596,617	3,756	4,000	1			1,592,617	99
Tulane University School of Medicine	515	1,600,876	3,108	529,000	33	950,876	59	121,000	8
Maryland:									
Johns Hopkins University School of Medicine	288	1,021,988	3,549	267,815	26	654,173	64	100,000	10
University of Maryland School of Medicine	376	1,103,505	2,934	283,475	25	76,560	8	743,470	67
Massachusetts:									
Boston University School of Medicine	284	660,198	2,324	284,000	43	308,701	46	67,497	1
Harvard Medical School	526	2,148,000	4,083	520,000	24	1,478,000	69	150,000	7
Tufts University School of Medicine	444	473,400	1,066	377,400	79	39,000	9	57,000	12

Michigan:									
University of Michigan Medical School	787	3,045,189	3,869	368,746	12	484,193	15	2,192,250	73
Wayne University College of Medicine	282	1,179,334	4,185	151,334	12	54,000	6	974,000	82
Minnesota: University of Minnesota Medical School	492	1,842,257	3,561	239,482	12	119,324	8	1,483,451	80
Missouri:									
St. Louis University School of Medicine	482	861,590	1,787	451,348	52	337,742	39	72,500	9
Washington University School of Medicine	363	2,621,400	7,221	382,600	14	2,118,100	80	120,700	6
Nebraska:									
Creighton School of Medicine	298	493,400	1,655	238,400	48	190,600	45	65,000	7
University of Nebraska College of Medicine	337	842,844	2,501	160,000	19	25,000	3	657,844	78
New York:									
Albany Medical College	221	866,499	3,920	213,649	24	427,145	49	225,705	27
University of Buffalo School of Medicine	295	564,010	1,911	239,000	42	234,810	45	90,200	13
Columbia University College of Physicians and Surgeons	465	2,397,746	5,152	771,000	32	1,556,000	64	70,746	4
Cornell University College of Medicine	337	1,644,139	4,878	317,867	19	1,296,272	78	30,000	3
New York Medical College	476	766,132	1,609	460,632	60	255,500	33	50,000	7
New York University College of Medicine	533	1,419,000	2,662	510,000	35	794,000	56	115,000	9
State University of New York College of Medicine at New York City	587	2,700,977	6,305	423,600	15	138,350	6	2,139,027	79
State University of New York College of Medicine, Syracuse	284	2,040,307	7,184	203,000	10	63,700	4	1,773,607	86
University of Rochester School of Medicine and Dentistry	273	1,222,000	4,475	267,000	22	840,000	68	115,000	10
North Carolina:									
Duke University School of Medicine	315	1,178,100	3,736	277,500	23	802,600	68	98,000	9
Bowman Gray School of Medicine	204	438,834	2,151	160,000	36	198,834	46	80,000	18
University of North Carolina School of Medicine	248	1,254,103	5,056	128,200	12	125,335	10	1,000,568	78
Ohio:									
University of Cincinnati College of Medicine	337	2,503,370	7,428	265,000	12	1,369,370	54	869,000	34
Western Reserve University School of Medicine	316	1,620,800	5,125	264,000	16	1,227,500	75	129,300	9
Ohio State University College of Medicine	572	2,488,744	4,350	277,225	11	367,865	14	1,843,654	75
Oklahoma: University of Oklahoma School of Medicine	379	940,950	2,483	164,120	17	83,924	9	692,906	74
Oregon: University of Oregon Medical School	297	1,186,995	3,999	150,000	12	88,651	8	948,344	80
Pennsylvania:									
Hahnemann Medical School	400	1,036,092	2,590	328,278	31	68,814	8	639,000	61
Jefferson Medical College	680	1,655,900	2,435	540,000	32	97,000	7	1,018,900	61
Temple University School of Medicine	497	1,200,968	2,416	321,271	26	32,372	3	847,325	71
University of Pennsylvania School of Medicine	501	2,231,634	4,454	429,414	19	915,606	40	886,614	41
Woman's Medical College	182	608,405	3,342	153,550	25	106,620	18	348,235	57
University of Pittsburgh School of Medicine	364	1,595,500	4,383	255,000	16	565,500	35	775,000	49
South Carolina: Medical College of South Carolina	295	1,047,750	3,551	127,950	12	----------	----------	919,800	88
Tennessee:									
University of Tennessee College of Medicine	802	1,097,000	1,367	413,000	38	92,000	8	592,000	54
Meharry Medical College	259	558,334	2,155	152,396	27	125,969	23	279,969	50
Vanderbilt University School of Medicine	205	819,380	3,997	185,400	22	571,680	69	62,500	9
Texas:									
Southwestern Medical School of University of Texas	380	1,224,046	3,221	56,061	5	47,481	4	1,120,504	91
University of Texas School of Medicine	611	1,957,000	3,202	27,000	2	150,000	7	1,780,000	91
Baylor University College of Medicine	351	1,071,734	3,053	283,864	26	734,369	68	53,501	2
Utah: University of Utah School of Medicine	202	677,250	3,352	108,250	16	9,000	2	560,000	86
Vermont: University of Vermont College of Medicine	182	774,499	4,255	161,950	20	110,049	16	502,500	64

[1] Ed. note: This amount is $571,500 less than the sum of the 3 components.

Table setting forth the teaching budgets of the 81 accredited medical schools in the United States as compiled by the fund from questionnaires completed by each medical school in 1955—Continued

Medical school	Number of students (1)	Teaching budget (2)	Income per student (3)	Tuition and fee income (4)	Percent of total income (5)	Other income from private sources (6)	Percent of total income (7)	Income from tax sources (8)	Percent of total income (9)
Virginia:									
University of Virginia School of Medicine	296	$967,078	$3,233	$140,000	14	$130,909	13	696,169	73
Medical College of Virginia	366	679,000	1,855	225,700	33	113,200	17	$340,100	50
Washington: University of Washington School of Medicine	287	1,810,596	6,308	162,500	8	23,407	3	1,624,689	89
Wisconsin:									
University of Wisconsin Medical School	321	1,219,882	3,800	102,030	8			1,117,852	92
Marquette University School of Medicine	391	625,563	1,599	309,650	49	265,913	42	50,000	9
Puerto Rico: University of Puerto Rico School of Medicine	184	1,318,000	7,163	94,496	9	316,500	23	907,004	68
BASIC SCIENCE 2-YEAR SCHOOLS									
Mississippi: University of Mississippi School of Medicine	167	798,156	4,810	85,800	10	24,500	4	687,856	86
Missouri: University of Missouri School of Medicine	116	999,000	8,612	21,000	2	10,000	1	968,000	97
New Hampshire: Dartmouth Medical School	48	192,342	4,007	34,534	18	152,808	80	5,000	2
North Dakota: University of North Dakota School of Medicine	78	368,000	4,718	4,500	1			363,500	99
South Dakota: University of South Dakota School of Medical Sciences	71	236,200	3,326	20,220	8	1,000	0	214,980	92
West Virginia: West Virginia University School of Medicine	60	216,000	3,600	16,000	8			200,000	92
Total	28,577	104,261,011		19,508,848		31,087,319		53,462,748	

In the following table, financial material for 1956–57 is broken down by individual school. The material is made available to the Council on Medical Education and Hospitals on a confidential basis, so the medical schools are identified only by code numbers.

The complex nature of teaching programs relate a medical school with medical-service activities, certain aspects of research, and educational service rendered to other schools or hospitals within the university organization. This combined with varying accounting systems makes it exceedingly difficult for any school to evaluate all budget factors with certainty and impossible to make valid comparative analysis.

Financial data, medical schools, 1956–57—Projected

	Anticipated income 1956–57: Operation of medical schools							Income from outside agencies: Research and teaching		
	Government appropriations	General university funds	Medical school endowment income	Tuition	Gifts	Other sources	Total anticipated income, 1956–57	Anticipated research income, outside sources	Anticipated teaching grants, outside sources	Total
1			$1,229,540	$520,000	$283,000	$493,539	$2,526,079	$2,400,000	$165,000	$2,565,000
2			7,080	446,610	94,265	18,000	558,875	500,000	80,000	580,000
3	$2,199,169		125,000	304,000	350,000	53,000	3,031,169	1,000,000	27,500	1,027,500
4	900,000			143,916	65,000		1,108,916	625,000	106,000	731,000
5	1,212,082		65,000	192,400	50,000	73,162	1,592,644	2,000,000	110,000	2,110,000
6		$387,780	266,470	422,750	122,500	64,250	1,263,750	250,000	95,000	345,000
7		148,800	1,009,516	379,167	28,500	895,656	2,461,639	1,300,000	194,000	1,494,000
8		101,649	22,000	242,800	60,000	2,000	428,449	150,000	93,000	243,000
9	561,708			160,000	25,000		746,708	71,000	107,000	178,000
10		6,000	40,000	248,000	56,000	752,800	1,102,800	300,000	130,000	430,000
11		50,000	134,300	160,000	80,000	227,200	651,500	162,000	88,000	250,000
12		375,000	390,000	252,000	130,000	648,000	1,795,000	500,000	150,000	650,000
13			785,122	262,500	448,693	251,000	1,747,315	2,029,303	155,380	2,184,683
14	2,135,925		20,667	83,936	265,001	82,194	2,587,723	174,143	50,332	224,475
15	652,350			160,000		36,000	848,350	243,539	126,916	370,455
16	1,136,000		23,950	165,591	67,000		1,392,541	600,000	150,000	750,000
17	786,000			345,448	40,000	54,000	1,225,448	450,000	75,000	525,000
18	1,348,000	36,600	27,100	551,800	110,000	35,000	2,108,500	398,900	50,000	448,900
19	1,086,018		54,007	314,216	41,146	49,050	1,544,437	300,000	102,106	402,106
20	1,060,287		658,974	425,000	466,470		2,610,731	1,989,530	260,470	2,250,000
21	900,000			131,502	22,000	2,000	1,055,502	100,000	65,000	165,000
22	1,156,000	31,000		60,000	18,000		1,265,000	50,000	75,000	125,000
23		161,670	2,800	37,000	7,000	62,450	270,920	25,000	40,000	65,000
24	424,984						424,984	85,000	35,000	120,000
25	197,480			22,000	18,500	6,000	243,980	60,000	25,000	85,000
26	180,000				12,000		192,000	35,000	25,000	60,000
27	991,379			128,000	25,000	25,000	1,169,379	200,000	106,000	306,000
28	[1] 1,329,710			125,800	24,000	377,000	1,856,510	235,000	81,000	316,000
29		155,892		413,625	80,000	581,311	1,230,828	200,000	340,000	540,000
30		437,000	20,000	268,000	30,000	75,000	830,000	1,150,000	150,000	1,300,000
31			32,875	362,730	32,240	260,935	688,780	525,000	62,000	587,000
32	559,399	21,800	27,107	144,000	59,740		812,046	118,000	90,500	208,500
33	750,000	166,029		175,000	190,000		1,281,029	350,000	95,000	445,000
34		210,000	376,433	229,800	27,000	174,500	1,017,733	650,000	81,000	731,000
35	700,000	5,000	6,000	144,240	25,000	25,000	905,240	197,639	50,000	247,639
36			13,983	198,400	743,785	20,596	976,765	321,968	50,000	371,968
37		185,664	526,510	464,400	96,450		1,273,024	892,648	62,975	955,623
38		236,202		262,400	30,500	132,321	661,423	80,000	65,000	145,000
39		639,000		259,000			898,000	3,500,000	94,074	3,594,074

39		639,000		259,000			898,000	3,500,000	94,074	3,594,074
40	2,521,198			253,100		12,600	2,786,898	817,400	80,000	897,400
41	362,000		28,000	163,375	85,500	8,200	647,075	16,900	75,000	91,900
42	697,475		510,966	252,000	154,800	34,270	1,649,511	605,000	95,000	700,000
43	973,600			128,400			1,102,000	303,000	60,000	363,000
44	434,800	238,836		430,000			1,103,636	144,900	52,960	197,860
45	6,000	217,500	44,763	163,000	40,000	1,325	472,588	163,131	70,210	233,341
46			499,651	186,400	177,000	49,000	912,051	650,000	83,200	733,200
47	1,526,647			44,718	76,430	26,400	1,674,195	235,562	80,000	315,562
48	1,930,447	115,000		28,000	312,238		2,385,685	335,397		335,397
49		92,387	327,000	288,000	403,500	149,600	1,260,487	700,000	86,500	786,500
50	450,000			120,450	30,000	62,400	662,850	1,400,000	75,000	1,475,000
51		550,000	100,000	250,000	100,000		1,000,000	400,000	50,000	450,000
52	1,871,881			835,000	23,646		2,730,527	2,000,000	117,551	2,117,551
53	2,887,000		8,000	65,000	30,000		2,990,000	790,000	140,000	930,000
54	836,862		2,700	349,258	40,000	11,250	1,240,070	900,000	400,000	1,300,000
55		669,136	632,592	307,745	30,000	251,500	1,890,973	1,519,000	182,690	1,701,690
56		125,000	9,000	391,961	48,714	39,520	614,195	400,000	100,000	500,000
57	2,775,000		121,400	414,000	33,500	159,000	3,502,900	600,000	105,000	705,000
58		182,000	400,000	290,000	75,000	80,000	1,027,000	575,000	250,000	825,000
59		490,000	824,600	450,000	50,000	50,000	1,864,600	3,500,000	55,000	3,555,000
60			453,660	357,000	48,000	829,724	1,688,384	2,500,000	70,000	2,570,000
61	1,378,296			234,400	110,000		1,722,696	400,000	95,000	495,000
62	1,462,660			146,100	875,140	650,000	3,133,900	600,000	56,000	656,000
63	1,359,889			233,100	40,000		1,632,989	670,000	100,000	770,000
64	625,000			315,135	55,000	47,076	1,042,211	395,000	91,000	486,000
65	1,777,898			1,200	28,912		1,808,010	342,517	224,393	566,910
66		75,000	350,000	529,000	55,000	130,500	1,139,500	987,000	97,000	1,084,000
67			865,838	270,000	130,911	1,067,285	2,334,034	1,500,000	125,000	1,625,000
68	806,053		35,000	291,630	28,098	1,200	1,161,981	600,000	150,000	750,000
69			33,256	288,340	35,000	300	356,896	514,621	228,691	743,312
70			220,500	446,110	33,600	13,000	713,210	500,000	63,800	563,800
71		303,000	246,000	561,000	56,000	253,000	1,419,000	2,300,000	267,000	2,567,000
72		101,051	1,025,726	263,325	46,700	104,015	1,540,817	992,550	132,450	1,125,000
73	2,018,538			202,996	25,148	42,682	2,289,364	415,340	84,660	500,000
74	875,842			122,000	39,110	2,150	1,039,092	430,000	340,000	770,000
75		720,000	14,000	312,000	119,500	40,500	1,206,000	1,200,000	100,000	1,300,000
76	537,100	57,497	10,577	147,650	42,400		795,224	100,000	77,000	177,000
77	589,827	18,335	35,270	149,000	32,387		824,819	350,000	148,911	498,911
78	301,437	127,152		229,770	29,555		687,914	564,530	66,000	630,530
79	1,572,467				25,483		1,597,950	1,450,000	100,000	1,550,000
80	1,015,930		48,200	109,440	45,000		1,218,570	850,000	108,000	958,000
81		71,000	63,950	380,735	386,000	33,200	934,885	275,000	81,000	356,000
82	840,824			99,176	30,000		970,000	225,000	175,000	400,000
Grand total	52,701,162	7,507,980	12,775,283	20,305,535	8,251,052	9,626,661	111,167,673	58,436,518	9,047,269	67,482,787

[1] Appropriation reduced by $2 million.

PLEASE RETURN BY JUNE 15, 1956

Council on Medical Education and Hospitals

AMERICAN MEDICAL ASSOCIATION
535 N. Dearborn Street
CHICAGO 10, ILLINOIS

Medical School Statistics

for the
1956 Education Number of THE JOURNAL of the American Medical Association

Please Note:—The annual publication of data on Medical Education in the United States and Canada will appear on August 25, 1956 rather than late in September or early October. In order to prepare material to meet this advanced publication date it is very important that medical school administrative officials submit their annual report on this questionnaire as near June 1st as possible and not later than June 15th. Your cooperation will be most deeply appreciated.

Council on Medical Education and Hospitals, Edward L. Turner, M.D., *Secretary*

1. Official Name of School .....

2. Dates of Academic year 1955-1956

	FIRST YEAR	SECOND YEAR	THIRD YEAR	FOURTH YEAR
a) Academic year begins	.....	.....	.....	.....
b) Academic year ends	.....	.....	.....	.....

3. Medical Student Enrollment 1955-1956. **Include all students who began classes even though they were dropped or withdrew during the year.** (To make these statistics of maximum value it is important that they reflect the number of students with and without liability for military service under the provisions of the Universal Military Service and Training Act, as amended. Male students who have no basic liability for military service include those who:

a) Between December 7, 1941 and September 2, 1945 served on active military duty an excess of 90 days; or

b) Between September 16, 1940 and June 24, 1948 served on active military duty in the Armed Forces for more than one year; or

c) After June 24, 1948 served on active military duty in the Armed Forces for two years or more and ended service with an Honorable Discharge.)

	FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
Student Statistics	Full time	Part time or Special	Full time	Part time or Special	Full time	Part time or Special	Full time	Part time or Special
1) Men with *no* military liability	.....	.....	.....	.....	.....	.....	.....	.....
2) Men *with* military liability	.....	.....	.....	.....	.....	.....	.....	.....
3) Women	.....	.....	.....	.....	.....	.....	.....	.....
4) Total number enrolled	.....	.....	.....	.....	.....	.....	.....	.....
5) Number foreign students (included in 4)	.....	.....	.....	.....	.....	.....	.....	.....
6) Students admitted (with advanced standing included in 4)	.....	.....	.....	.....	.....	.....	.....	.....
7) Student Attrition from total enrollment recorded in item (4)	.....	.....	.....	.....	.....	.....	.....	.....
a) Number dropped for academic failure	.....	.....	.....	.....	.....	.....	.....	.....
b) Number who withdrew in poor academic status	.....	.....	.....	.....	.....	.....	.....	.....
c) Number who withdrew for other reasons	.....	.....	.....	.....	.....	.....	.....	.....

8) Does your institution plan to augment enrollment in the enteriag class in 1956-1957? ..... By how many students? .....

4. Teaching Responsibilities of the Medical Faculty for other than Undergraduate Medical Students 1955-1956. (Please do not report the same individual in more than one category.)

	NUMBER ENROLLED		NUMBER ENROLLED
a) Undergraduate or Basic Professional		b) Professional	
1) Dental Students		(not candidates for advanced degrees)	
2) Pharmacy Students		1) Interns	
3) Nurses		2) Residents	
4) Technical Students		3) Fellows (not otherwise designated)	
5) Arts and Science majors		4) Postgraduate continuation students	
6) Other		c) Candidates for advanced degrees	

	PHYSICIANS NO. STUDENTS ENROLLED		NON-PHYSICIANS NO. STUDENTS ENROLLED	
	MASTERS	DOCTORATES	MASTERS	DOCTORATES
1) Basic Science (Names Departments)				
a)				
b)				
c)				
d)				
e)				
2) Clinical Sciences (Names Departments)				
a)				
b)				
c)				
d)				
e)				
d)				

e) Please list departments other than those included in (c) above which are authorized to conduct graduate work leading to advanced degrees (Masters and/or Doctorates) which currently (1955-1956) have no graduate students enrolled.

5. Premedical preparation of first year students enrolled for academic year 1955-1956.

a) Number who completed equivalent of 3 years _____; 4 years _____

b) Number who possess a baccalaureate degree _____

c) What is the minimum premedical entrance requirement for admission to your institution in terms of academic years and/or degrees _____

d) Were any exceptional students admitted with less than minimal requirements? _____

e) Please indicate the number of students in 1955-1956 first year class whose premedical record placed them in the following categories

1) Superior (3.6-4.0 or A) _____

2) Average (2.6-3.5 or B) _____

3) Fair (2.6 or C) _____

6. Permanent home residence of First year students enumerated under question 3.

(Please indicate number from each state, territory or foreign area.)

Alabama	Illinois	Mississippi	Ohio	Virginia
Arizona	Indiana	Missouri	Oklahoma	Washington
Arkansas	Iowa	Montana	Oregon	West Virginia
California	Kansas	Nebraska	Pennsylvania	Wisconsin
Colorado	Kentucky	Nevada	Rhode Island	Wyoming
Connecticut	Louisiana	New Hampshire	South Carolina	Alaska
Delaware	Maine	New Jersey	South Dakota	Hawaii
District of Columbia	Maryland	New Mexico	Tennessee	Puerto Rico
Florida	Massachusetts	New York	Texas	Canada
Georgia	Michigan	North Carolina	Utah	Foreign
Idaho	Minnesota	North Dakota	Vermont	Total

(Please specify country of origin of any foreign students enrolled) _____

7. Degrees granted by parent institution for work completed in the medical sciences during the 1955-1956 academic year.

DEGREE	DATE	MEN	WOMEN	TOTAL
M.D.				
M.S. (or M.A.)				
Ph.D.				

8. Estimated number of M.D. graduates during 1956-1957 academic year

9. Student Tuition and Fees for academic year 1956-1957:

	RESIDENT		NON-RESIDENT	
	Tuition	Other Fees	Tuition	Other Fees
First Year				
Second Year				
Third Year				
Fourth Year				

10. Calendar dates for the next academic year (1956-1957)

	FIRST YEAR	SECOND YEAR	THIRD YEAR	FOURTH YEAR
a) Will begin on				
b) Will end on				

11. At intervals it should be useful for medical schools to make a current comparative study of curriculum time allocations in various departments. This year a cross section analysis of time allocation in the first two years is being made through the medium of the following information:

	HOUR ALLOCATIONS			
Department	Lecture	Seminar or Conference	Laboratory and/or Demonstrations	Total
Anatomy a) Gross				
b) Microscopic				
c) Neuroanatomy				
Biochemistry				
Microbiology a) Bacteriology				
b) Virology				
c) Mycology				
d) Parasitology				
Physiology				
Pharmacology				
Pathology a) General				
b) Special				
Special Courses a) Growths & Development				
b) Physical Diagnosis				
c) Clinical Laboratory Diagnosis				
d) Psychiatry				
e) Introduction to Clinical Sciences				
(Please list)				
f) Other				

12. Budgetary Information 1956-1957

a) Statement of anticipated income for 1956-1957 available for general operating expenses of the medical school. (Exclude income for hospital and grants for research and other special projects from outside agencies, which are covered in (b) and (c) below.)

1. Government appropriations (federal, state, county, city)
2. General university funds
3. Income from endowment assigned to medical school
4. Tuition
5. Gifts (Including National Fund for Medical Education)
6. Other sources (Specify)
7. Total

b) 1. Total anticipated income for 1956-1957 from outside agencies for research projects .....

2. Total anticipated income for 1956-1957 from outside agencies for teaching grants .....

c) Total anticipated income for 1956-1957 available for operation of hospital or dispensary owned by the medical school .....

d) Budget for 1956-1957 for general operation of the medical school. (Exclude expenses for operation of clinical facilities and expenses for research and special projects supported by funds from outside agencies.) .....

1. Administration of medical school .....

2. Charge for university administration .....

3. Medical School buildings and grounds .....

4. Equipment and supplies .....

5. Salaries .....

6. Research supported by medical school (if budgeted separately) .....

7. Other expenses (Specify) .....

8. Total budget .....

13. a) Please list any major new buildings (or additions) owned by the medical school on which construction was initiated during the period July 1, 1955 to June 30, 1956, indicating approximate cost of each and the purpose for which building is to be utilized (basic medical sciences, research, teaching, hospital, clinic, etc.) .....

.....

.....

.....

b) Please list any major new buildings (or additions) owned by the medical school the construction of which was completed during the period July 1, 1955 to June 30, 1956 and indicate approximate cost of each and the purpose for which building is to be utilized (basic medical sciences, research, teaching, hospital, clinics, etc.) .....

.....

.....

.....

14. Have there been any major new developments in your institution or in its program during the past year (1955-1956) in any of the areas indicated below? If so, please check (√) and elaborate on a separate sheet anything of value for the section on "New Developments in Medical Schools" in the annual report.

a) In the area of administrative organization .....

b) In the selection of medical students .....

c) In curriculum planning and activation .....

d) In financial resources .....

1. For salaries .....

2) For maintenance operation .....

3) For new equipment .....

4) For construction .....

5) For research .....

6) For student loans and scholarships .....

7) For basic endowment .....

e) In other areas (Please specify) .....

15. Does the Dean prepare an Annual Report to the President and Board? .....

(Please forward a copy of the Annual Report, if available.)

16. Please enclose a copy of the school calendar for 1956-1957.

17. Please enclose an outline of the current curriculum.

18. Name of Dean or Executive officer in Charge .....

115. Deitrick, John E., and Berson, Robert C. Medical Schools in the United States at Mid-Century. New York, McGraw-Hill Book Co., Inc., 1953. Pages 67–78; and Medical Education in the United States and Canada. Journal of the American Medical Association 159:581, October 8, 1955.

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116. Reply to staff outline received from American Medical Association. See questions 113 and 114.

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117. Reply to staff outline received from American Medical Association and deans of medical schools. Reproduced in questions 122, 129, and 130.

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118. Faculty Salaries, Hospital Support, Medical Education. A statement by the trustees of the Ford Foundation, special appropriations. December 8–10, 1955. Part III (reproduced below).

Medical training is the most expensive field of education. The deficit incurred for each student is reported to be as high as $2,800 a year. Total cost of teaching is roughly four times that for the student in general university training.

The Nation's medical schools, with enrollments of less than 10 percent of the total in their parent universities, use as much as 36 percent of the total university budgets. High medical school costs are due chiefly to the high teacher-student ratio in medical instruction, the need for extensive hospital facilities as an adjunct to teaching, costly laboratories and scientific equipment, expanding research, and the mounting new responsibilities of medical schools, including graduate training and continuing education for practicing physicians.

Reply to staff outline received from American Medical Association.

EFFECTS OF MEDICAL SCHOOL FINANCING ON UNIVERSITY FINANCING

The tables in questions Nos. 107 and 113 give some indication of the universities' contributions to their medical schools. The more than $6 million in 1955–56 and more than $7 million in 1956–57 derived from general university funds in support of the basic operating budgets of the medical schools is, however, a very incomplete presentation of universities' support. Reference to the tables in question 113 giving data for individual schools shows that in many instances no charges are allocated to the university. Since all but seven medical schools are owned and operated by universities, this obviously represents an incomplete representation of actual facts due again to the highly individualized nature of cost-accounting procedures.

Reliable information concerning the effect of medical school financing on the universities can best be obtained from the parent universities themselves.

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119. Public Health Service. Medical School Grants and Finances, Part III, Public Health Service Grants, Washington, D. C., Government Printing Office, 1951, pages 3–5 (reproduced below).

EFFECTS OF GRANTS ON MEDICAL SCHOOLS

1. With the significant sums of money made available to medical schools in the form of Public Health Service grants, marked effects on the pattern of operations, organization, and financing of medical education may be expected. Deans' opinions on a number of questions relating to these effects were solicited.

2. Deans' statements regarding the effects of research grants on the research activities of schools do not confirm fears that Government grants might be incompatible with academic freedom. Although several deans said that Public Health Service grants have tended to overemphasize applied research at the expense of fundamental investigations, this opinion was not shared by the majority.

3. Almost one-third of the deans indicated that there has been some change in the direction of research, more investigation being carried on in areas supported by Public Health Service grants. The consensus is that this change is not detrimental and that the broad interpretation given by national advisory councils to the purposes of grants has stimulated research in a wide range of subjects. At most schools, grants are requested for projects that are the natural outgrowth of the principal investigator's interests and achievements. In the majority of institutions, grant-supported research is thoroughly integrated into the general academic program.

4. At some schools, the increase in time given by members of the faculty to research and to national committees concerned with research grants has necessitated certain adjustments to maintain the teaching programs. At most institutions, the deans say that the increase in research activity has not interfered with training.

5. All types of grants to medical schools have a beneficial, though sometimes indirect, effect on training, depending on the type and purpose of the grants. The training fields that have benefited most directly are cancer and psychiatry, which have direct support through training grants. Fears expressed by some that categorical grants might disturb the balance in training, by overemphasizing certain specialized areas, are not supported by the opinions of the deans. Nevertheless, deans suggest that further multiplication of specialized training grant programs may have such an effect.

6. Public Health Service grants have had little influence on the amount of consultation service which schools provide for surrounding areas or on the development of programs of exchange residencies.

7. In general, other sources of support for medical schools have been sustained or increased. The deans cited no evidence that receipt of Public Health Service grants has curtailed other sources of income. Changes in the policies of certain private foundations, rather than

withdrawal of support, were given as the reasons for reduction in income from private sources at some medical schools.

8. Data furnished by the schools indicate that Public Health Service grants supported 5 percent of all full-time senior faculty positions in 1948. A larger proportion of positions in lower ranks was supported than in higher ranking positions.

9. Certain schools have encountered problems which are attributed to the grant policies of the National Institutes of Health. Among such problems cited by 31 deans are uncertainty of grant renewal, increase in administrative responsibility carried by the faculty, and intensification of competition for staff.

10. Deans cited a number of other fields of research and training which need the stimulus of special support. Preventive medicine, pediatrics, and obstetrics were most frequently cited among clinical departments.

PROBLEMS OF ADMINISTRATIVE POLICIES AND PROCEDURES

1. Deans were about evenly divided in their opinions on the adequacy of the allowance for overhead made by the Public Health Service. Those who indicated that the allowance is adequate felt that the fact that these grants are made to help finance projects initiated by members of the faculty must be taken into consideration. In general, deans who feel that the allowance for overhead is inadequate represent schools which are in most urgent need of additional general support. At two-thirds of the public schools, deans felt that the allowance for overhead was adequate, whereas among private schools about two-thirds of the deans felt that the allowance was not sufficient.

2. Most deans would favor fluid funds rather than grants restricted as to use. Nevertheless, a substantial minority of deans prefer the present categorical allocation of funds.

3. The short-term character of grants, delays in notification, and inadequacy of information on grant procedures were other problems cited by deans.

Reply to staff outline received from American Council on Education (reproduced below).

AMERICAN COUNCIL ON EDUCATION,
Washington, D. C., August 15, 1956.

Mr. KURT BORCHARDT,
Legal Counsel, Committee on Interstate and Foreign Commerce, House of Representatives, Washington, D. C.

DEAR MR. BORCHARDT: Your letter of August 14 to Mr. Walter E. Hager has been referred to the president of the council for reply. Since President Adams is on vacation, I am sending you a preliminary statement on his behalf. The American Council on Education has not itself conducted any statistical studies concerned with medical education. We are, therefore, not in a position at the moment to supply the type of facts you request.

* * * * * * *

With regard to topic C (7), one of the most important items is federally sponsored research. As a matter of fact, in the judgment of our committee on institutional research policy, the policies of the United States Public Health Service in this area have been to a large extent responsible for the financial plight of some of the medical schools. We do not have factual material concerning this problem, but we do have a general statement of the principles and policies involved, and I am therefore sending you under separate cover a copy of our publication, Sponsored Research Policy of Colleges and Universities. I am sure President Adams would agree that one of the most useful services which you could perform would be to make an objective study of the impact of the research policies of Federal agencies on the financial structure of medical and dental schools.

If there are further ways in which we can be of assistance, please let us know.

Sincerely yours,

RAYMOND F. HOWES,
Staff Associate.

SEPTEMBER 27, 1956.

Mr. RAYMOND F. HOWES,
Staff Associate, American Council on Education,
Washington, D. C.

DEAR MR. HOWES: This is in further reference to your letter of August 15, 1956, and our conference on September 24.

You stated in your letter that in the judgment of your committee on institutional research policy the policies of the United States Public Health Service, in connection with federally sponsored medical research, have been to a large extent responsible for the financial plight of some of the medical schools.

In considering legislation on Federal aid to medical schools, the Committee on Interstate and Foreign Commerce would, of course, be greatly interested in hearing specific testimony on this aspect of the operations of some of our medical schools. I appreciate the statement contained in your letter that the council does not have factual material concerning this problem. I am wondering, however, whether the members of the committee on institutional research policy can give to this committee the names of some of the schools which experienced the deterioration of their financial status on account of the acceptance of public-health-research grants, so that they may present their situation to the committee.

I regret that contrary to the statement contained in your letter of August 15, the council will be unable to assist the committee in securing factual information on the effects which the financing of medical schools has on university financing. You will appreciate that this information is of considerable importance to this committee, and I am still hopeful that some way may be found to secure some concrete information on this point, at least in the case of a few medical schools.

Sincerely yours,

KURT BORCHARDT, *Legal Counsel.*

AMERICAN COUNCIL ON EDUCATION,
Washington, D. C., September 28, 1956.

Mr. KURT BORCHARDT,
Legal Counsel, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D. C.

DEAR MR. BORCHARDT: I have your letter of September 27 and am taking immediate steps to secure the information you have requested. Enclosed is a copy of a memorandum which I am sending to the members of our former committee on institutional research policy. If the results from this communication are inadequate, I plan to request the same information from members of our entire committee on relationships of higher education to the Federal Government. I shall keep you informed of results.

Sincerely yours,

RAYMOND F. HOWES, *Staff Associate.*

SEPTEMBER 27, 1956.

MEMORANDUM

To: Members of the former committee on institutional research policy.
From: Raymond F. Howes, staff associate, American Council on Education.

The House Committee on Interstate and Foreign Commerce has directed its staff to investigate medical school financing as a basis for consideration at the next session of Congress of proposals that the Federal Government give financial support to medical education. Several weeks ago, in response to a request from the committee staff, we supplied a copy of the report of the committee on institutional research policy. We have now received a communication from Mr. Kurt Borchardt, legal counsel of the committee, in which he asks for assistance in securing information on two points raised in that report. He is aware that it will not be feasible to make thorough statistical surveys and is therefore asking for advice as to typical examples that can be further investigated.

Specifically he has requested the following information:

(1) The names of some of the medical schools which experienced the deterioration of their financial status because of the acceptance of public-health-research grants; and

(2) The names of some universities which could furnish information on the effects which deficit financing of medical schools is having on general university financing.

As you doubtless know, the committee on relationships of higher education to the Federal Government gave general approval last spring to the administration plan for financial assistance to medical schools. The council is therefore under some obligation to do what it can in helping congressional committees find evidence on relevant issues. Any suggestions you can send me will be very much appreciated.

120. Medical Education in the United States and Canada. Journal of the American Medical Association 161: 1644, August 25, 1956; 159: 572, October 8, 1955; 156: 144, September 11, 1954. (Data include Canadian schools.)

Reply to staff outline received from American Medical Association (reproduced below).

AMERICAN MEDICAL ASSOCIATION,
COUNCIL ON MEDICAL EDUCATION AND HOSPITALS,
Chicago 10, Ill., October 22, 1956.

Mr. KURT BORCHARDT,
Legal Counsel, Committee on Interstate and Foreign Commerce, House of Representatives, Washington, D. C.

DEAR MR. BORCHARDT: As you requested in your letter of October 3, the following represents an elaboration of replies to the questions in your letter of September 18, in addition to the material that was sent to you September 24.

* * * * * * *

In answer to your question 4, the 15 medical schools reporting construction projects completed this year (1955–56) together with the nature of the projects are as follows:

University of Arkansas: Hospital and clinics building with offices and laboratories for School of Medicine clinical departments completed.

Yale University: Edward S. Harkness Memorial Hall opened September 1955. This residence hall provides single rooms for all unmarried students and apartments for married students, a dining hall, recreation rooms, etc.

Emory University: Clinic building for patients of faculty members and private group practice completed. In addition, a parking garage to serve clinic and hospital was completed.

Medical College of Georgia: Annex to Dugas and Murphy Building for teaching and research completed. The new administration building was completed and occupied this scholastic year. Major items of repair were needed to meet the demands of the fire marshal.

Indiana University: Completion of remodeling of 2 floors of the clinical building, providing bed space for 46 patients and 4 additional operating rooms and recovery rooms.

University of Kansas: A psychiatric building was completed for teaching, hospital, outpatient clinic, and research, making the psychiatric facility an integral part of the medical center whereas formerly it had been 1 mile away in a very old building.

University of Michigan: Children's psychiatric hospital completed consisting of building, equipment, and tunnel to existing hospital.

Albany Medical College: Surgical research building was completed to be used for teaching experimental surgery to medical students, as well as the training of interns and residents in surgical research.

The State University of New York at Brooklyn completed a basic sciences building.

Albert Einstein College of Medicine of Yeshiva University completed a basic medical sciences building.

University of North Carolina completed a psychiatric building of 70 beds for inpatients and psychiatric outpatient clinic. This facility was opened January 1, 1955.

University of Oregon completed a teaching hospital.

Temple University completed a clinic building of 8 stories for teaching, operating rooms and radiology department of 2 stories, and an inpatient hospital building of 380 beds in 10 stories.

The Medical College of South Carolina completed a Medical College teaching hospital as well as a School of Nurses' Building for the education and housing of nurses.

The Medical College of Virginia completed McGuire Hall Annex in May 1956, to provide additional classrooms, laboratories, and offices for the School of Pharmacy and for the basic science departments of anatomy, biology, and physiology.

The 23 schools that reported initiating new construction projects in the year 1955–56 and the nature of the projects were as follows:

University of Arkansas: New educational wing for preclinical departments of the School of Medicine, School of Pharmacy, and School of Nursing begun prior to July 1, 1955.

The College of Medical Evangelists: Alterations in pathology facility and initiation of construction for cardio-pulmonary laboratory.

University of California at San Francisco: Medical Science Building II to house departments of anatomy, physiology, and physiological chemistry.

Howard University: Basic medical sciences building.

University of Illinois: Addition to the east dentistry-medicine-pharmacy building to be utilized for stores and business office serving the hospitals and college on the professional campus.

Indiana University: Work begun on housing addition to School of Nursing.

University of Kansas: Library building initiated for the medical center.

University of Louisville began construction on the modernization program of the Louisville General Hospital, which, though not owned by the university, is operated professionally by it and which is the chief teaching hospital of the medical school.

University of Maryland installed a cobalt 60 radiation treatment unit, addition to nurses' residence, operating rooms and delivery rooms, X-ray and recovery rooms, as well as additional research facilities.

University of Michigan began medical sciences building.

University of Missouri: Nurses' dormitory for 110 students initiated.

University of Nebraska: Memorial research laboratory.

The entire Seton Hall College of Medicine is in development as a new school. We do not have particulars on the construction projects initiated during 1955–56.

Albany Medical College: New animal quarters contiguous with new surgical research building.

New York University: Hall of residence with residential facilities having a capacity of 396 persons in single and double rooms, and an alumni hall, a facility providing a 500-seat auditorium and 3 lecture rooms of 150 capacity each.

Albert Einstein College of Medicine: Student dormitory.

Ohio State University: North wing addition to university hospital for teaching and research at clinical level.

Woman's Medical College: Addition to residence hall.

Hahnemann Medical College: Remodeling and reequipping of the cardiovascular institute building initiated.

Baylor University: Supervoltage radiology building to be utilized for therapy, research, and the residency training program teaching of anatomy.

University of Utah: Medical College kennel to be used for housing teaching and research dogs.

Medical College of Virginia: Powerplant began February 1955 to furnish steam for enlarged college and hospital facilities and also to take care of additional heating of the Ennion G. Williams Hospital, construction of which was initiated in 1953.

University of Washington: Initiated construction of a teaching hospital.

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121. Reply to staff outline received from deans of the medical schools (reproduced below). Also Journal of Medical Education, 30: 59, October 1955; 31: 137, February 1956; 29: 59, November 1954; 31: 574, August 1956.

UNIVERSITY OF MISSOURI,
SCHOOL OF MEDICINE,
Columbia, December 20, 1956.

Mr. KURT BORCHARDT,
Legal Counsel, House of Representatives,
House Office Building, Washington, D. C.

DEAR MR. BORCHARDT: Pursuant to the request of the Committee on Interstate and Foreign Commerce of the House of Representatives, Congress of the United States, our office is very pleased to acknowledge your inquiry of December 17, 1956, concerning architectural arrangements, construction costs, source of funds, and other factors concerning the University of Missouri Medical Center in Columbia, Mo. For your guidance and information, I am enclosing herein the diagrammatic floor plans of the University of Missouri Medical Center, drawn to scale, in which, to the best of my knowledge, reflect all change orders to date. Permit me to point out that the University of Missouri Medical Center consists of 3 units: a 441-bed university hospital in the foreground, which contains in addition to the elements for patient care, the offices, classrooms, and research laboratories of the various clinical departments of medicine, surgery, obstetrics, and gynecology; pediatrics, the surgical specialties, psychiatry, physical medicine, pathology, radiology, and the like; the medical sciences building in the background, which is designed to accommodate 100 students in each teaching laboratory and is connected to the university hospital by a 2-story corridor, which contains therein an auditorium seating 350 persons, and a library designed to accommodate 150 persons in the reading room and stacks to accommodate 100,000 volumes; and a nurses' dormitory connected by an underground tunnel to the university hospital, which will accommodate 107 student nurses and 3 house mothers. In addition, the costs of expansion of the University of Missouri powerplant, utility lines, sewerage, and the like, were budgeted by the board of curators in the original appro-

priation requests. The cost of these units to date is summarized herein:

Teaching hospital building	$8, 589, 715. 49
Medical sciences building	3, 306, 393. 81
Nurses' dormitory	485, 357. 24
Powerplant extension	1, 181, 500. 00
Total	13, 562, 966. 54

Estimated excess funds as of November 27, 1956, to pay for change orders amount to $37,033.46.

In order to secure competitive bidding and because of the size of the project involved, the board of curators of the University of Missouri proceeded with the construction of the University of Missouri Medical Center in these 3 units; namely, the university hospital of 441 beds, the medical sciences building, and the nurses' dormitory in the order named. The contracts for the construction of the first unit, namely, the 441-bed university hospital, were awarded by the board of curators of the University of Missouri on December 10, 1953, and each of the additional units' contracts were awarded in subsequent order as it became possible to do so. The entire University of Missouri Medical Center was completed in the fall of 1956, approximately 3 years after the starting date, and the university hospitals and portions of the medical sciences building were occupied for the teaching of medical and nursing students on September 16, 1956. Our office is prepared and would be pleased to give you itemized statements concerning the square footage, the cubic footage, equipment, foundations, architectural fees, engineering costs and the like, but I can summarize briefly by stating that the construction costs of both the university hospital and the medical sciences building have reached $1.62½ per cubic foot. Upon recommendation of this office, President Elmer Ellis of the University of Missouri, and the board of curators allotted approximately 9 percent of the total contract price for equipment of the university hospital and the medical sciences building. By virtue of recent price increases of scientific equipment, it is probably wiser to allot 12 percent of the total contract costs for equipment. I might point out that the costs of all the X-ray equipment, the surgical lights, and such specialized items are included in the 9-percent estimate listed above. Contracts were awarded by the board of curators separately for these items.

The entire University of Missouri Medical Center consists of reinforced concrete type of construction. The university hospital of 441 beds in the foreground of the architectural conception is 8 stories high, but all service areas of the university hospitals, such as the kitchens, the outpatient department, the X-ray department, the laboratories and the like, are designed for any future expansion that may be anticipated in the future. The medical sciences building is at present only 4 stories high, although it is the same length and width as the university hospital. The medical sciences building, however, has columns and foundations to support 4 more stories, should expansion be deemed advisable by the board of curators, within the foreseeable future. The nurses' dormitory, now accommodating 110 persons, is likewise designed for any foreseeable expansion up to a total of 430 persons. The 2-story corridor, to which I have referred above, connecting the medical sciences building and the university

hospital, has foundations and columns to support the addition and completion of 8 full stories, such space being deemed advisable and necessary for clinical investigations by the clinical faculty of the school of medicine.

I shall be very pleased to provide you with any additional information that you may desire. As I indicated above, our office is in a position to provide you with detailed information of any type which you are seeking, and I shall look forward to hearing from you in this regard.

In 1951 and 1953 the board of curators of the University of Missouri requested and secured from the general assembly of the State of Missouri a total appropriation of $13,500,000. In 1956 the board of curators requested and secured Hill-Burton funds allotted to the State of Missouri in the amount of $100,000 applicable only to construction and equipment of the nurses' dormitory. This brings the total cost of the University of Missouri Medical Center to $13,600,000.

With all good wishes for the holiday season, and thanking you for your interest in the University of Missouri school of medicine, I remain

Sincerely yours,

ROSCOE L. PULLEN, M. D., *Dean.*

ALBERT EINSTEIN COLLEGE OF MEDICINE,
YESHIVA UNIVERSITY,
New York, N. Y., December 28, 1956.

CONGRESS OF THE UNITED STATES,
Committee on Interstate and Foreign Commerce,
House Office Building, Washington, D. C.

(Attention: Kurt Borchardt, Esq.)

DEAR MR. BORCHARDT: Referring to your letter of December 17, 1956, I am pleased to furnish you with the approximate costs involved in the establishment of the Albert Einstein College of Medicine of Yeshiva University.

Preliminary steps	$150,000
Architectural fees	500,000
Land costs	500,000
Basic science building (air-conditioned)	10,000,000
Library and auditorium	1,500,000
Equipment and furnishings	2,000,000

The source of these funds were for the most part from voluntary contributions to the university received from individuals and organizations throughout the United States. In addition, a permanent mortgage loan in the sum of $3,800,000 with interest at the rate of 4 percent per annum, was obtained by the university from the Metropolitan Life Insurance Co.

If there is any further information that you may desire in connection with the foregoing, will you please let me know.

Sincerely yours,

MARCUS D. KOGEL, M. D., *Dean.*

THE UNIVERSITY OF MISSISSIPPI MEDICAL CENTER,
OFFICE OF THE DIRECTOR,
Jackson, Miss., December 26, 1956.

Mr. KURT BORCHARDT,
Legal Counsel, Committee on Interstate and Foreign Commerce,
House Office Building, Washington, D. C.

DEAR MR. BORCHARDT: I have received your letter of inquiry dated December 17. I am giving you very briefly the pertinent figures. Should you wish more details, we will be glad to furnish them.

Federal funds (Hill-Burton)	$3,000,000
Hinds County	1,500,000
State of Mississippi by legislation appropriation	4,500,000
Total	9,000,000
The medical school and 350-bed hospital cost	8,375,000
Equipment in same	625,000
Total	9,000,000

Since then the building commission has allocated further small sums. Recently another $50,000 was voted for equipment and changes.

Sincerely yours,

D. S. PANKRATZ, M. D., *Director.*

UNIVERSITY OF MIAMI,
SCHOOL OF MEDICINE,
Coral Gables, Fla., December 24, 1956.

Hon. KURT BORCHARDT,
Legal Counsel, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D. C.

DEAR MR. BORCHARDT: I will acknowledge your recent letter requesting information relative to the costs of establishing our school of medicine, and try to give you background information as to our beginning. In order to give you specific costs, I have asked the treasurer of the university to review our early expenditures. Just as soon as he has been able to sort out the information necessary, I will forward the figures to you.

Our school did not have the usual pattern of establishment, and it might be said that it was started on little more than a sincere desire of the university's administration to provide this facet of educational opportunity which had not existed in Florida since 1886. Financially, there was not much more than a "shoestring" to guarantee the school's success. The background is interesting and significantly typical of much of the university's growth.

I believe that I mentioned in a previous communication that the State of Florida Legislature enacted a bill during the 1951 session which provided the payment of a $3,000 per year per student subsidy to the support of the first medical school opening in Florida as an administrative unit of an institution of higher education. This support carried no provision for defraying opening costs of such a school,

nor did it carry provision for supporting a teaching hospital which the school would need in its instructional program.

The passage of the bill and its subsequent enactment into law stimulated the University of Miami board of trustees to give serious thought to the establishment of a medical school. In March 1952, this body came to the definitive decision to do so. Inasmuch as the new law was supported by the appropriation of funds to be expended during the period of 1951–53 (July 1, 1951–June 30, 1953), it was almost necessary that a new school be opened in the fall of 1952 in the thought that if no school laid claim to the subsidy during the biennium, no further appropriation would be forthcoming. There was neither time nor adequate finances to permit the university to construct buildings to house the medical school before its projected opening in the fall of 1952.

Through negotiations with Veterans' Administration, however, an unused building on the local Veterans' Administration hospital reservation in Coral Gables was leased by the university and remodeled to provide facilities for the preclinical departments. Basic equipment was ordered; much of the furniture (laboratory desks, work tables, dissecting tables, etc.) was constructed in the shops of the university.

It will be the costs of such remodeling and equipping that I can provide for you as soon as the treasurer can furnish the information.

Our school is now in its fifth year of operation and our preclinical departments still occupy the facilities on the Veterans' Administration hospital reservation. Our clinical departments are housed in Jackson Memorial Hospital, which is a county-owned-and-operated hospital. The university has provided funds for the remodeling of certain areas of the hospital which serve as office space for the clinical departments. It also has purchased a building adjacent to the hospital, and the remodeling of this structure will provide for much needed space for research programs in the clinical areas. Only recently, the Public Health Service made a grant to the school of $941,720 from Public Law 835, for the construction of a research building. The university will match this grant to give a fund of $1,883,440 to be used for the research building. There remains the provision of an educational building for the medical school, and this is urgently needed, for we are crowding all facilities to the utmost. The county of Dade has set aside an amount of $1 million, which, when added moneys are obtained, will be used in the construction of the educational facility.

We are quite interested in the possibility that Federal funds may become available within the next year to assist in the construction of educational facilities for medical schools. We estimate that, in addition to the $941,720 which the university will provide as matching for the grant made from Public Law 835, about $3 million will be needed for the construction of the educational building, and, of this, the county has provided $1 million. Naturally, if there is any way in which we can assist your committee in arriving at some conclusion regarding the legislation which has been before the Congress in connection with Federal aid for educational purposes, we will be quite happy to do so.

With kindest regards, and assuring you that specific costs on our opening will be provided soon, I am

Sincerely yours,

HOMER F. MARSH, Ph. D., *Dean.*

UNIVERSITY OF MIAMI,
SCHOOL OF MEDICINE,
Coral Gables, Fla., December 28, 1956.

Hon. KURT BORCHARDT,
Legal Counsel, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D. C.

DEAR MR. BORCHARDT: I have obtained the following information regarding opening costs of our medical school which I am happy to pass along.

As I explained previously, our opening was made possible by remodeling an existing building on the Veterans' Administration hospital reservation rather than having to build a new building. Although it sufficed to permit our beginning operation, the building rapidly is becoming inadequate. Soon we will have to construct a new educational building.

A total of $180,307 was required for making necessary structural changes and in providing basic "fixed" equipment, such as the dissecting tables, laboratory benches, and library shelves.

An additional $132,827 was spent in purchasing basic scientific equipment and apparatus for the departments which would be operating in the first year of the teaching program.

As other departments were organized for the second year's activities, I would estimate that $150,000 to $175,000 were spent in providing the basic equipment and apparatus required for their operation.

In all, the figure of $450,000 to $500,000 would about cover opening costs, exclusive of repetitive or continuing expenses, such as salaries for faculty, administration, and staff.

As we came to the need for hospital facilities for clinical instruction, we were quite fortunate in that it was not necessary for us to build such facilities. The county commission made available to us the facilities of Jackson Memorial Hospital. It is, of course, a tax-supported general hospital with an annual budget of approximately $8 million, roughly one-half of which comes from tax sources. The remainder comes from charges made to private (pay) patients who use its facilities. The hospital includes 950 beds and bassinets, a 100-bed psychiatric institute, a 64-bed "chest disease" unit, a 24-bed infectious diseases isolation unit, an emergency clinic, and a modern (1955) outpatient clinic handling 175,000 patients annually. It is estimated that such facilities carry an evaluation of about $14 million and only recently an additional $6 million was voted by the freeholders of the county to expand the hospital.

In view of these circumstances and the cooperative spirit which has prevailed, the medical school was brought into being at the barest minimum dollar cost. The cost of bringing it into operation cannot be compared to that of any other existing school, and it is not an example of a typical beginning.

Trusting my information will help you and your committee, and with kindest regards, I am

Sincerely yours,

HOMER F. MARSH, Ph. D., *Dean.*

THE J. HILLIS MILLER HEALTH CENTER,
UNIVERSITY OF FLORIDA,
Gainesville, February 6, 1957.

Mr. KURT BORCHARDT,
Committee on Interstate and Foreign Commerce,
House Office Building, Washington, D. C.

DEAR MR. BORCHARDT: Your letter of December 17 addressed to Dr. George T. Harrell has been referred to me by Provost Russell S. Poor for reply.

I have attached 2 statements which reflect the estimated total cost of constructing and fully equipping the 2 buildings which will constitute the J. Hillis Miller Health Center. The medical sciences building, completed in September 1956, houses all of the departments of the college of medicine plus several administrative offices. The 400-bed teaching hospital and outpatient clinic is currently under construction, and is scheduled to be completed in the fall of 1958.

It is presently estimated that the cost of constructing and equipping the structures involved will amount to approximately $17,885,445. Of this amount, the State legislature has either appropriated or will be requested to appropriate all but $248,000. This latter sum represents Federal matching funds which we will receive for rehabilitation areas in the teaching hospital and outpatient clinic.

In addition to the expenditures for physical facilities and equipment, several hundred thousand dollars was expended studying the problem of the location of the health center as well as developing the basic concepts of its program. Funds for these studies came from public and private sources.

I hope this information will satisfy your requirements. If it does not, kindly let me know and I shall do my utmost to provide you with whatever additional information you may desire.

Sincerely,

A. E. ANSLEY,
Business Manager.

UNIVERSITY OF FLORIDA—J. HILLIS MILLER HEALTH CENTER

Estimated cost of constructing and equipping the Medical Sciences Building [1] prepared as of Jan. 31, 1957

	Estimated [2] current expenditures	Anticipated [2] future expenditures	Total
Medical sciences building costs:			
Site investigation	14,868.70		
Architect fees	253,006.27		
Foundation contract	294,447.61		
Building contract	3,576,985.33		
Utilities [4]	496,529.20		
Miscellaneous	34,313.92		
Total construction cost			$4,670,151.03
Equipment:			
Laboratory furniture	252,648.43		252,648.43
Scientific equipment	419,645.90	$455,149.00	874,794.90
Office, library, and auditorium furnishings	121,436.59	24,551.00	145,987.59
Office equipment	37,290.63	3,350.00	40,640.63
Medical library books [5]	150,000.00	156,110.00	306,110.00
Maintenance equipment	25,054.51	18,750.00	43,804.51
Miscellaneous	1,854.17		1,854.17
Total equipment costs	1,007,930.23	657,910.00	1,665,340.23
Total			6,335,991.26

[1] The medical sciences building is a reinforced-concrete frame building of 238,000 square feet. The building is fully air conditioned and will house all of the departments of the college of medicine. Building facilities also include a 500-seat auditorium and medical library.

[2] Utility expense represents the amount charged the medical sciences building construction account as its share of the cost of constructing a steam and chilled water plant. This plant furnishes the building with steam and chilled water; the latter being used for air conditioning.

[3] The estimated current expenditures for equipment represents funds that have been appropriated for this purpose. A considerable portion of this money has been either disbursed or encumbered as of the date of this statement. Historical costs, encumbrances, and the anticipated costs we expect to incur by June 30, 1957, have been consolidated and are reflected in this column.

[4] These figures reflect the amount of money which the legislature has been requested to appropriate for the 1957-59 biennium. Present estimates indicate that these funds will be required to complete the equipping of the medical sciences building.

[5] As of the date of the preparation of this statement, about $110,000 has actually been disbursed for approximately 60,000 medical books presently on hand in the library.

Estimated cost of constructing and equipping the teaching hospital and outpatient clinic [1] prepared as of Jan. 31, 1957

Teaching hospital and clinic building costs: [2]	
Architect fees	$450,053.32
Foundation	979,222.00
Building contract	7,578,670.09
Utilities [3]	507,565.00
Miscellaneous expense and contingencies	132,635.59
Total construction cost	9,648,146.00
Anticipated cost of hospital equipment: [4]	
Class II equipment	1,582,508.00
Class III equipment	318,800.00
Total estimated equipment cost	1,901,308.00
Total [5]	11,549,454.00

[1] The teaching hospital and outpatient clinic will be a reinforced-concrete frame building of 375,000 square feet. The building will be fully air-conditioned and ready for occupancy by the fall of 1958.

[2] The cost of constructing the 400-bed teaching hospital and outpatient clinic is based upon contracts that are either complete or in progress.

[3] Utility expense represents the amount charged to the teaching hospital construction account as its share of the cost of constructing a steam and chilled water plant. This plant will furnish the hospital building with steam and chilled water. The latter will be used for air contitioning.

[4] The estimated cost of equipping the teaching hospital and outpatient clinic is based upon an equipment cost survey prepared by a hospital supply concern. The total equipment cost represents the amount the State legislature has been requested to appropriate for this purpose.

[5] Expenses in addition to the total reflected here are anticipated for landscaping and road work around the hospital.

122. Reply to staff outline received from American Medical Association and from deans of medical schools (reproduced below). Also, Medical Education in the United States and Canada, Journal of the American Medical Association 161: 1640–1643, August 25, 1956. Data reproduced on page 328 compiled by Division of Public Health Methods, Public Health Service. See also questions 2 and 34.

STATE PROGRAMS AND PLANS FOR ASSISTING MEDICAL SCHOOLS

The most significant endeavor on the part of State governments is represented by the 39 State-owned medical schools in 34 States (California, Michigan, New York, Texas and Virginia each own 2 schools).

Although all of the six medical schools in Pennsylvania are privately owned, the State generously supports the schools through annual appropriations based on approximately $2,000 per student enrolled.

The State of Florida contributes to the support of the School of Medicine of the University of Miami on the basis of $3,000 annually per student enrolled.

Kentucky has for the past several years contributed to the School of Medicine of the University of Louisville by means of an educational grant that amounts to $500,000 for the current year.

UNIVERSITY OF MIAMI,
SCHOOL OF MEDICINE
Coral Gables, Fla., October 18, 1956.

Hon. KURT BORCHARDT,
Legal Counsel, Committee on Interstate and Foreign Commerce,
House of Representatives, United States Congress,
Washington, D. C.

DEAR MR. BORCHARDT: I am happy to give you the following information concerning the State subsidy for medical education. Inasmuch as this legislation was enacted a year prior to my joining the University of Miami, there are areas of detailed background information with which I am not entirely familiar. I will attempt to obtain details on the legislative history, however, and forward the material to you as soon as possible.

To appreciate the circumstances which led to the existing arrangement, let me give you the following. In 1886, the only medical school in Florida closed after a brief history of 3 years. Since that date and until 1952, when the University of Miami opened its medical school, there had been no facility for medical education in Florida. For several years prior to 1952, groups of citizens of the Greater Miami area had been interested in the possibility of establishing a medical school in south Florida. These groups included representatives of the Dade County Chamber of Commerce, Dade County Board of County Commissioners, Dade County Medical Association, the University of Miami officials, and private citizens. The University of Miami had given much thought to ways and means of establishing and operating a school of medicine, but the almost overwhelming

costs of establishing the school and a teaching hospital obviated the possibility that it, a nontax-supported institution, could undertake such a project.

In the 1951 session of the State legislature, Senator R. B. Gautier, of Miami, introduced a bill into that body which embraced the final arrangements of the subsidy plan. This was supported by the Dade County legislative delegation and the bill was passed by the State legislature and signed into law by Hon. Fuller Warren, then Governor of Florida, in May 1951. As soon as this was done, the University of Miami seized the advantage of utilizing such support and through several arrangements was able to initiate the present school of medicine.

Pertinent aspects of the legislation follow, and I will obtain for you the complete act with other details.

To insure the establishment of a sound medical school which could be approved by the American Medical Association and by the Association of American Medical Colleges, the State proposed to pay a subsidy of $3,000 per year per student to the first medical school opening in Florida as an academic unit of a recognized college or university. The subsidy was not to be paid to students.

The subsidy support was to be used in the ordinary operational expenses of the medical school; it could not be used for expenses of construction nor in the operational costs of a hospital or clinic.

To insure that Florida's students would benefit from the arrangement, it was provided that the $3,000 per student would be paid only if 90 percent of the students in each class were bona fide residents of Florida at the time of their admission and if they and their parents had been residents of Florida for a minimum period of 7 years prior to the student's admission. Although it was permitted that 10 percent of a class could be composed of students who had less than the 7 years' of residence requirement, no subsidy would be paid for such students.

In order that the medical school serve all parts of the State, no more than 15 students could be admitted to a single class from a single county of the State.

In further description of the manner in which the University of Miami made ready to take advantage of this support, you may be interested in the cooperative efforts exhibited by the community. To provide for housing the preclinical classrooms, laboratories, library, and offices, the university worked out a lease arrangement with the Veterans' Administration to take over an unused building on the reservation of the local VA hospital, remodel, and equip it. (The remodeling and equipping was done at university expense, of course.) This was done during the early months of 1952. The County of Dade and the university negotiated an agreement whereby the facilities of the county-owned-and-operated Jackson Memorial Hospital were placed at the use of the medical school as its primary clinical teaching facility. This hospital is of 950-bed size and serves both private and charity patients as a general hospital. The county agreed also to set aside $2 million of bond issue moneys to be used toward the construction of a new outpatient clinic building and a new medical-sciences building, the latter to permit the ultimate removal of the preclinical departments from the VA hospital. The county agreed to continue

to provide financial resources for the hospital's operation from tax moneys.

Thus, by the fall of 1952, after the passage of legislation in 1951, the university was able to open its School of Medicine with the first class.

We believe that these arrangements may constitute an ultimate solution to the problem of either tax-supported or independent institutions providing medical education opportunities which are so needed and without bankrupting the institution. The one most difficult handicap to overcome is that of providing adequate physical facilities for preclinical instruction requirements, that is, the student laboratories, library, and research areas. Although our own arrangements to use the remodeled facility on the local VA hospital reserve was only a temporary measure, we still use it after 4 years. The county, having set aside the $2 million mentioned earlier, has used almost one-half of that amount in the construction of a very fine and modern outpatient clinic building and the remainder is hardly sufficient to provide the necessary medical-sciences building for the school. The university finds it's quite difficult to provide the additional millions of dollars needed to construct an adequate building, and the medical school is hampered in its potential development. Naturally, we have been watching the progress of the several bills in the United States Congress which would provide matching funds for the construction of medical-school facilities and the enactment of any of these would make it possible for the real development of this school and others.

I hope that my letter has not been unreasonably lengthy, but we do have an unusual situation here which has been of interest to many throughout the country. I trust that my descriptions may be of assistance to your committee, and I assure you that I will furnish you with the rest of the details requested.

With kindest regards, I am,

Cordially yours,

HOMER F. MARSH, Ph. D., *Dean.*

UNIVERSITY OF PITTSBURGH,
SCHOOLS OF THE HEALTH PROFESSIONS,
Pittsburgh, Pa., October 18, 1956.

Mr. KURT BORCHARDT,
Legal Counsel, House of Representatives, Committee on Interstate and Foreign Commerce, Congress of the United States, Room 1334, House Office Building, Washington, D. C.

DEAR MR. BORCHARDT: The questions you ask concerning the State appropriations for medical schools in Pennsylvania cannot be answered immediately. I came to Pennsylvania only 2 years ago; therefore, I will have to get some help in answering the question.

I do know that a separate appropriation for the medical school at the University of Pittsburgh has been in effect only since June 1, 1953. Before that time the appropriation was for the entire university and there was a determination by the university as to how much went to medicine and how much to law and so on. Beginning on June 1, 1953 the legislature appropriated at the rate of $1,500 per student per year alone. I cannot tell you how this figure was arrived at. On June 1, 1955, the amount was increased to $2,000 per student per year at the

request of the medical schools. In the testimony concerning the increase, I do know that the representatives were interested in whether or not this increase would result in the State paying a lower percentage of the costs in our institution. The State was increasing its percentage because in the meantime we had secured a considerable endowment from private sources.

I have referred your letter to Dr. William S. McEllroy, who has been the dean here for many, many years and he can probably answer it more fully.

Sincerely yours,

ROBERT A. MOORE,
Vice Chancellor, Health Professions.

Number of medical schools by type of ownership, 1955–56

State	Total schools	Publicly owned	Privately owned	State	Total schools	Publicly owned	Privately owned
Total	83	39	44	Montana	0		
				Nebraska	2	1	1
Alabama	1	1		Nevada	0		
Arizona	0			New Hampshire	1		1
Arkansas	1	1		New Jersey	0		
California	5	2	3	New Mexico	0		
Colorado	1	1		New York	10	2	8
Connecticut	1		1	North Carolina	3	1	2
Delaware	0			North Dakota	1	1	
District of Columbia	3		3	Ohio	3	[1] 2	1
Florida	1		[1] 1	Oklahoma	1	1	
Georgia	2	1	1	Oregon	1	1	
Idaho	0			Pennsylvania	6		[1] 6
Illinois	5	1	4	Rhode Island	0		
Indiana	1	1		South Carolina	1	1	
Iowa	1	1		South Dakota	1	1	
Kansas	1	1		Tennessee	3	1	2
Kentucky	1		[1] 1	Texas	3	2	1
Louisiana	2	1	1	Utah	1	1	
Maine	0			Vermont	1	1	
Maryland	2	1	1	Virginia	2	2	
Massachusetts	3		3	Washington	1	1	
Michigan	2	2		West Virginia	1	1	
Minnesota	1	1		Wisconsin	2	1	1
Mississippi	1	1		Wyoming	0		
Missouri	3	1	2	Puerto Rico	1	1	

[1] Financial support given by State.
[2] Includes 1 municipally owned school.

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123. Medical Education in the United States and Canada, Journal of the American Medical Association, 161: 1640–1641, August 25, 1956; 97: 618–619, August 29, 1931. See question **5.**

124. Reply to staff outline received from American Medical Association, used as basis for tabulation reproduced below prepared by Division of Public Health Methods, Public Health Service.

State contributions to medical school operating budgets, by State, 1956–57

State	State contributions	Percentage of medical school operating budget financed out of State contributions	Number of medical schools	
			Total in State	Receiving State support
Total	$52,016,763	46.7	82	47
Alabama	991,379	84.8	1	1
Arizona			0	
Arkansas	1,329,710	71.6	1	1
California	4,758,881	54.2	5	2
Colorado	836,862	67.5	1	1
Connecticut			1	
Delaware			0	
District of Columbia			3	
Florida	750,000	58.5	1	1
Georgia	700,000	36.4	2	1
Idaho			0	
Illinois	2,521,198	38.2	5	1
Indiana	1,378,296	80.0	1	1
Iowa	1,462,660	46.7	1	1
Kansas	1,359,889	83.3	1	1
Kentucky	500,000	54.5	1	1
Louisiana	1,777,898	60.3	2	1
Maine			0	
Maryland	806,053	23.1	2	1
Massachusetts			3	
Michigan	3,099,169	74.9	2	2
Minnesota	1,212,082	76.1	1	1
Mississippi	900,000	85.3	1	1
Missouri	1,156,000	23.2	3	1
Montana			0	
Nebraska	561,708	47.8	2	1
Nevada			0	
New Hampshire			1	
New Jersey			0	
New Mexico			0	
New York	4,793,538	31.6	9	2
North Carolina	875,842	30.2	3	1
North Dakota	424,984	100.0	1	1
Ohio	2,135,925	34.8	3	1
Oklahoma	652,350	76.9	1	1
Oregon	1,136,000	81.6	1	1
Pennsylvania	5,339,780	54.6	6	6
Rhode Island			0	
South Carolina	973,600	88.3	1	1
South Dakota	197,480	80.9	1	1
Tennessee	440,800	17.7	3	2
Texas	3,457,094	65.0	3	2
Utah	450,000	67.9	1	1
Vermont	537,100	67.5	1	1
Virginia	891,264	58.9	2	2
Washington	1,572,467	98.4	1	1
West Virginia	180,000	93.8	1	1
Wisconsin	1,015,930	47.2	2	1
Wyoming			0	
Puerto Rico	840,824	86.7	1	1

125. See questions 126 to 132.

126. See question 129.

127, 128. Medical Education in the United States and Canada. Journal of the American Medical Association 159: 573, October 8, 1955, and Regional Education in Higher Education—Special number. Higher Education 6: 97–112, January 1, 1950.

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129. Reply to staff outline received from Western Interstate Commission for Higher Education (reproduced below).

WESTERN INTERSTATE COMMISSION FOR HIGHER EDUCATION,
Boulder, Colo., October 19, 1956.

Mr. KURT BORCHARDT,
Legal Counsel, Committee on Interstate and Foreign Commerce,
Room 1334, House Office Building, Washington, D. C.

DEAR MR. BORCHARDT: This will acknowledge your letter of October 9 and the enclosed letter and outline, dated August 14, on aid to medical education.

As you may know, this commission is an interstate compact of the Western States and Territories, created to promote interstate cooperation in higher education. One of our major interests is training in the medical, dental, and public health fields.

With regard to question C (5) of your outline, WICHE administers a student exchange program in the fields of medicine, dentistry, and veterinary medicine. Through this program students from Western States which do not have professional schools in the fields mentioned are enabled to enroll in schools in other Western States. Exchange program students are charged the usually lower in-State or resident fee. Through WICHE, the sending States appropriate funds to help support the receiving institution in the other States. Payments from the sending States to the schools are $2,000 per student annually in medicine, $1,600 in dentistry, and $1,200 in veterinary medicine.

Some 200 students are attending professional schools under the program this year and State payments will be $351,600.

The student has a better chance of being admitted to professional school and saves, on the average, several thousand dollars in tuition fees. The receiving institutions are strengthened financially and thereby enabled to improve their programs. The sending States avoid the tremendous costs of establishing new schools (which in many cases are not feasible for other reasons such as the requirements for faculty and clinical resources) and at the same time meet part of their obligation to provide training in these important fields.

On the other outline topics, we have a number of activities and studies underway which will be of interest to you.

In the field of dentistry, we have just completed a report on dental manpower requirements in the West which gives some attention to the need for additional facilities for training dentists. I have sent a copy of the report and some press releases summarizing it to you under separate cover.

In medical education, the commission recently requested the staff to initiate studies of current and future facilities for medical education in the West. We are bringing our data on medical education up to date and requesting additional information from the deans of the western

medical schools. I hope that some of this information will enable us to comment on your outline more fully before the first of the year.

We have also recently completed a survey of training and research in the mental health fields. You may find the reports of this study, also sent under separate cover, relevant to B (4) (b) and (c) of your outline.

I hope to be able to provide information on some of the other outline topics in the not too distant future.

Sincerely yours,

HAROLD L. ENARSON, *Executive Director.*

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130. Reply to staff outline received from Southern Regional Education Board (reproduced below).

SOUTHERN REGIONAL EDUCATION BOARD,
Atlanta 9, Ga., October 17, 1956.

Mr. KURT BORCHARDT,
Legal Counsel, Committee on Interstate and Foreign Commerce,
House Office Building, Washington, D. C.

DEAR MR. BORCHARDT: Enclosed are some tables giving information on our medical contract program, as well as a pamphlet which describes the principles of operation of the program on pages 9 and 10.

I am also enclosing a table which gives some projections of applicants to medical schools. These assume that the number of applicants will increase at the same rate as the number of college graduates. The need for expansion in medical schools is also indicated on two assumptions: (1) That 60 percent of applicants would be admitted each year, and (2) that 75 percent of applicants would be admitted.

If we can be of further assistance, please let us know.

Sincerely yours,

JOHN K. FOLGER,
Research Associate.

THE SOUTHERN REGIONAL EDUCATION PROGRAM

February 1956

(Southern Regional Education Board, 881 Peachtree Street NE., Atlanta 9, Ga.)

* * * * * * *

ACTIVITIES UNDER THE COMPACT

The southern regional education compact authorizes the board to establish new institutions to meet the region's needs in higher education, but as a matter of policy the board has worked only through existing institutions. Colleges and universities cooperate in the regional education program through contracts and memoranda of agreement as well as combine their interests with those of industry, governmental agencies, and professional associations through regional councils. Commissions appointed by the board's director study the possibility of new regional programs in various fields and the feasibility of other types of regional arrangements. The board also acts in an

advisory capacity to Southern States and institutions, encouraging studies of the organization and administration of higher education, and conducting research to provide information for sound planning and development.

Regional education contracts

The regional education contract programs are the oldest activities carried on under the compact. They operate in medicine, veterinary medicine, dentistry, and social work. In these fields student demand is great and the necessary educational facilities rare and expensive. The process works like this:

A State needing facilities in a given field contracts with the board to send to an institution possessing the facilities a quota of students certified as bona fide residents. The State agrees to pay a set amount per student to the receiving institution.

The board then contracts with an institution.

The institution then agrees to receive the regional students on a resident basis provided they meet its admission requirements.

The State pays $1,500 a year for each student in medicine and dentistry; $1,000 a year for each student in veterinary medicine; and $750 a year for each student in social work. In 1955–56 it is estimated that about $1½ million will pass from States to 19 institutions, representing an estimated total of about 1,000 students. The students are relieved of out-of-State fees, but the State appropriations are not in any sense scholarships.

Number of students under regional contract by schools in medicine

School	1949–50	1950–51	1951–52	1952–53	1953–54	1954–55	1955–56
Medical College of Alabama		4	7	9	4		
Emory	19	35	57	75	75	80	77
Louisiana State University	4	9	9	10	6		
Tulane	11	28	43	54	49	42	40
Duke	6	11	18	24	26	32	32
Wake Forest					2	4	4
Meharry	100	102	137	151	147	147	147
University of Tennessee	30	43	49	36	27	26	31
Vanderbilt	4	9	15	21	20	19	14
Medical College of Virginia					1	3	2
Total	174	241	335	380	357	353	347

Sums received by institutions under regional contracts in medicine

	1949–50	1950–51	1951–52	1952–53	1953–54	1954–55	1955–56
Medical College of Alabama		$6,000	$10,500	$13,500	$6,000		
Emory	$28,500	52,500	85,500	112,500	112,500	$119,250	$115,500
Louisiana State University	6,000	13,500	13,500	15,000	9,000		
Tulane	16,500	42,000	64,500	81,000	72,750	63,000	60,000
Duke	9,000	16,500	27,000	36,000	39,000	48,000	48,000
Wake Forest					3,000	6,000	6,000
Meharry	143,250	153,375	207,000	225,000	220,500	219,750	220,500
University of Tennessee	30,500	69,000	61,500	54,500	34,000	50,500	45,500
Vanderbilt	6,000	13,500	22,500	31,500	30,000	28,500	21,000
Medical College of Virginia					1,500	4,500	3,000
Total region	239,750	366,375	492,000	569,000	528,250	539,500	519,500

Projections of entering medical students, southern region

Year	Number of applicants	Size of freshmen medical class	Freshmen class as a percent of total applicants	Premise 1		Premise 2	
				Projected 60 percent acceptance	Size of freshmen class needed	Projected 75 percent acceptance	Size of freshmen class needed
1950–51	4,789	2,002	0.42				
1951–52	4,591	2,126	.46				
1952–53	3,758	2,167	.58				
1953–54	3,436	2,218	.65				
1954–55	3,420	2,200	.64				
1955–56	3,087	[1] 2,300	.75				
1956–57	3,519	[2] 2,400	.68	0.68	2,400	0.75	2,659
1957–58	3,758	2,400	.64	.64	2,400	.75	2,818
1958–59	3,739	2,400	.64	.64	2,400	.75	2,804
1959–60	3,906	2,400	.61	.61	2,400	.75	2,929
1960–61	4,113	2,400	.58	.60	2,468	.75	3,085
1961–62	4,266	2,400	.56	.60	2,560	.75	3,200
1962–63	4,486	2,400	.53	.60	2,692	.75	3,364
1963–64	4,743	2,400	.51	.60	2,846	.75	3,557
1964–65	5,134	2,400	.47	.60	3,080	.75	3,850

[1] Assumes University of Florida Medical School accepts entering class of 100.
[2] Assumes University of Kentucky Medical School accepts entering class of 100.

Number of students under regional contract, by States, in medicine

State	1949–50	1950–51	1951–52	1952–53	1953–54	1954–55	1955–56
Alabama	10	10	13	15	15	15	15
Florida	51	83	135	177	201	227	219
Georgia	11	11	14	14	15	15	15
Louisiana	4	8	10	10	10	10	11
Maryland	6	8	7	8	7	7	8
Mississippi	47	75	90	76	41	9	8
North Carolina	12	12	9	19	12	15	13
South Carolina	5	6	9	11	10	9	10
Tennessee	12	12	19	19	19	19	19
Texas			10	14	11	10	14
Virginia	16	16	19	17	16	17	15
Region	174	241	335	380	357	353	347

Payments under regional contracts by States in medicine, 1950–56

	1949–50	1950–51	1951–52	1952–53	1953–54	1954–55	1955–56
Alabama	$15,000	$15,000	$19,500	$22,500	$22,500	$22,500	$22,500
Florida	76,500	124,500	202,500	265,500	297,250	351,500	327,500
Georgia	16,500	16,500	21,000	21,000	22,500	22,500	22,500
Louisiana	6,000	12,000	15,000	15,000	15,000	15,000	16,500
Maryland	9,000	12,375	10,500	12,000	10,500	10,500	12,000
Mississippi	54,500	117,000	123,000	114,500	58,500	12,500	12,000
North Carolina	18,000	18,000	13,500	28,500	18,000	22,500	19,500
South Carolina	5,250	9,000	13,500	16,500	15,000	13,500	15,000
Tennessee	18,000	18,000	28,500	28,500	28,500	28,500	28,500
Texas			16,500	19,500	16,500	15,500	21,000
Virginia	21,000	24,000	28,500	25,500	24,000	25,500	22,500
Region	239,750	366,375	492,000	569,000	528,250	539,500	519,500

131. Reply to staff outline received from University of Vermont College of Medicine (reproduced below).

THE UNIVERSITY OF VERMONT, COLLEGE OF MEDICINE,
Burlington, Vt., October 17, 1956.

Mr. KURT BORCHARDT,
Legal Counsel, Congress of the United States, House of Representatives, Committee on Interstate and Foreign Commerce, House Office Building, Washington, D. C.

DEAR MR. BORCHARDT: In response to your letter of October 9, two types of legislation have been approved by the Legislatures of Maine, New Hampshire, and Vermont.

Type I is enabling legislation which permits the State universities of the 3 States to contract with each other for higher education in the fields not provided by 1 of the contracting States. Under this arrangement only New Hampshire has provided the sum of $2,000 per student to share with the State of Vermont the cost of educating 4 New Hampshire students in the University of Vermont College of Medicine. Although enabling legislation exists in Maine, no contract has been concluded. In return for this, the University of Vermont College of Medicine gives first preference to residents of Maine and New Hampshire after residents of Vermont and in the case of the four New Hampshire students charges them in-State or the equivalent of Vermont tuition. (Non-Vermont tuition is $1,000. Vermont tuition is $550.) In addition, looking forward to such legislation from other States, we have offered third preference to students who are residents of the other New England States. The only effect which we can describe is that we have had an increasing number of applications from the students in the New England States and concurrently we have increased our New England enrollment so that approximately 95 percent of our student body now comes from the New England area.

A second type of legislation which has been passed by all of the New England States except Rhode Island establishes by law and appropriates funds for the New England Board of Higher Education, which is charged with developing contracts among the various institutions in the New England area for higher education. This board is patterned on similar boards in Colorado and the Southern States.

The State of Vermont not only provides that students who reside in Vermont shall enjoy reduced tuition but in addition provides 50 $200 scholarships for these students in medicine. Approximately 45 students are taking advantage of these scholarships. These scholarships carry with them the obligation to practice in the State of Vermont for 1 year for each year for which this scholarship is accepted or refund to the university the amount of the scholarship.

If you require further information please let me know.

Sincerely,

GEORGE A. WOLF, Jr., M. D., *Dean.*

132. Reply to staff outline received from Council of State Governments (reproduced below).

THE COUNCIL OF STATE GOVERNMENTS,
Chicago 37, Ill., October 19, 1956.

Mr. KURT BORCHARDT,
Legal Counsel, Committee on Interstate and Foreign Commerce, House Office Building, Washington, D. C.

DEAR MR. BORCHARDT: This is in reply to your letter of October 9 requesting information about the supply of medical students in the Midwest and regional programs for assisting medical schools and students in the Midwest.

In November 1954, the Council of State Governments completed a preliminary report on educational facilities and needs in dentistry, medicine, and veterinary medicine in the Midwest at the request of the North Central States legislative conference and the Midwest regional conference of the Council of State Governments. This report included information about enrollment, applicants, capacity for expansion, and so forth, of midwestern dental, medical, and veterinary medicine schools.

We are sending a loan copy of this report from which you will be able to get the sources for more current information. As indicated by the enclosed progress report of the Midwest interstate committee on higher education, a committee was formed to consider the needs for interstate action in the Midwest. The progress report, in summarizing action that has been taken up to the present time, indicates that it was felt no immediate formal interstate action, such as that reflected by the southern regional education board, the western interstate commission for higher education, or the New England higher education compact, was needed in the Midwest. It was decided, however, to continue the committee and to explore areas of possible interstate cooperation. The current activity will be devoted primarily to continuing a study of possible regional cooperation for training of qualified persons in the field of mental health.

We hope that this information will be helpful to you. We will appreciate your returning the loan copies of the report when you have completed your study, since they are our file copies. If we can be of any further assistance, do not hesitate to write.

Sincerely,

PAGE L. INGRAHAM,
Assistant Director of Research.

133. National Fund for Medical Education. Report to Contributors, 1955. Reply to staff outline received from American Drug Manufacturers Association and American Academy of Pediatrics (reproduced below).

AMERICAN ACADEMY OF PEDIATRICS,
Evanston, Ill., September 4, 1956.

Mr. KURT BORCHARDT,
Legal Counsel, Committee on Interstate and Foreign Commerce,
House Office Building, Washington, D. C.

DEAR MR. BORCHARDT: Our attention has been called to the activities of your committee in gathering data concerning aid to medical schools. The American Academy of Pediatrics has been interested in this problem for some time and has a special committee which is making a study of the many organized drives for funds for the purpose of supporting research and activities to combat certain diseases.

We are taking the privilege of enclosing a copy of the report prepared by this committee as well as the resolutions adopted by the executive board of the academy at their last meeting (see p. 3 of the enclosed newsletter).

Sincerely yours,

E. H. CHRISTOPHERSON,
Executive Secretary.

[Newsletter, June 1956]

The executive board at the meeting in Houston, after hearing the report of a special committee to study the multiplicity of fund drives, passed two resolutions which were sent to labor organizations, the United Fund Organization, the United States Chamber of Commerce and others. The resolutions were:

"The executive board of the American Academy of Pediatrics recognizes the inherent difficulties and disadvantages of the present multiplicity of drives and demands for funds for individual diseases and urges continued and further study of ways and means of solving this problem equitably.

"The executive board of the American Academy of Pediatrics urges the adoption of a method of utilizing an equitable portion of the funds collected by the health agencies for combating specific diseases to support medical education and basic research as suggested in the committee report."

The report presented by this special committee is interesting and informative and follows:

REPORT OF SPECIAL COMMITTEE TO INVESTIGATE FUNDS FOR SPECIAL DISEASES

"Probably the most revolutionary political doctrine ever promulgated was that one citizen, no matter what his wealth, power, or position, should have one vote, no less and no more. Given the Bill of Rights to protect each citizen in the exercise of his franchise and the fact that the 'have-nots' have always outnumbered the 'haves' even in this country, this doctrine has been responsible for carrying the United States through a gradual bloodless revolution toward the inevitable conclusion. Today, despite all the inequalities and imper-

fections, wealth is being shared in this country to a greater and greater degree and at an average level of prosperity undreamed of anywhere else in the world. As a result, universities, hospitals, and other philanthropic institutions, once supported by the large gifts of a few enormously wealthy individuals, are increasingly dependent upon the small donations of a large number of common men and upon the taxes collected from them by the governments of their own choosing."

That is a quote from an article presented by Dr. Charles Janeway in Minneapolis at the University of Minnesota at the time of the opening of one of the new buildings.

The modern community chest movement began in 1913 in Cleveland. The original concept of the community fund drive was to provide more adequate financial support for purely local health and welfare community services; to budget the available funds according to need; and to reduce the confusion and the cost of solicitation for multiple drives.

In 1918 to strengthen the effort to raise money for welfare services for our military service, a national association of local chests, united funds and councils was organized as the Community Chests and Councils of America, Inc. The movement has grown as the value of its original concept has been established. With this growth some of the national local voluntary health agencies which solicit funds locally have joined local chests or united funds. In 1954, of 1,858 fund campaigns, 700 had been expanded to include not only local agencies but one or more of the national health agencies. In the 30 years of recorded community and united fund campaigns, the quota was reached or exceeded in but 3 years. The total collected in 1954 for use in 1955 was 95.9 percent of the goal or $302,023,059.

The major national health agencies, that concentrate their efforts on specific diseases, have either never joined the united fund or having had experience in the united fund drives have withdrawn. A few national health agencies allow the local chapter the decision as to whether they should join the local united fund drive or solicit independently. Many of the large national health agencies will not permit their member chapters to join a local united fund. In 1954, the following totals were collected by some of the large national health agencies:

National Foundation for Infantile Paralysis	$66, 900, 000
National Tuberculosis Association	24, 700, 000
American Cancer Society	21, 700, 000
American Heart Association	11, 300, 000
United Cerebral Palsy Association	8, 200, 000
Muscular Dystrophy Association of America	3, 900, 000
Arthritis and Rheumatic Foundation	1, 800, 000
National Association for Mental Health	1, 500, 000

All of these organizations allocate certain proportions of their sums to research of one type or another and to some form of professional education.

By its constitution, the American Academy of Pediatrics is dedicated to the fostering and stimulating of interest in pediatrics and to the correlation of all aspects of the work for the welfare of children which properly comes within the scope of pediatrics. The academy is committed to establishing and maintaining the highest possible standards for pediatric education in medical schools and hospitals, pediatric practice and research. The vast majority of specific diseases that are being attacked by national health organizations in-

volve the pediatric age group to a great extent—the obligation of the of the academy to cooperate with our allies in the organized struggle to combat the diseases of infancy, childhood, and adolescence is obvious.

The academy is convinced that all organizations involved in raising funds to study specific disease should adopt a broad approach to the problem. These organizations make splendid short-term contributions to the support of research programs, but these presuppose the presence of a research worker trained and ready to develop the field. Also consider the plight of the advanced research worker. He has reached a point when, for his and his family's security, academic tenure becomes important. To support this worker, a long-term commitment is needed—most grants are for a short 1, 2- or 3-year period, at the end of which time or a year or two before the project ends the individual must spend valuable research time uncovering new support. The type of research worker needed for the conquest of disease will only devote his life to the problem if his future security can be assured.

Too much special advanced clinical or scientific research based on existing knowledge will soon run up against a stone wall unless at the same time countless research workers have been allowed complete freedom in their basic research that at the moment they may have no apparent connection with the problem at hand. The laboratories of our universities, medical schools, and hospitals are the areas wherein this basic research can be performed in the most favorable environment, but again individual economic security is the magnet that draws these dedicated workers.

Voluntary health agencies which finance research have an obligation as they exhaust the present supply of trained personnel—trained by others, so in effect a priceless gift to the foundations—to see that an adequate supply of trained workers is developing. Again, it is the universities, medical schools, and hospitals that are the areas where these men should be in training.

The funds have an obligation to the medical schools of the country for here is the basic source not only of future research workers, but of the trained medical personnel to operate their service programs. The funds should, for their own success, be interested in assisting in training future pediatricians in the areas of the foundation's special interest to the end that future staffing and supervision of their many service clinics will be assured.

The American Academy of Pediatrics believes that the welfare of all children, indeed the general health of the Nation, would be better served if the national health agencies interested in specific disease could be convinced that their programs would be more successful over the long pull if they extended their area of active support back from the front line of clinical and research to include long-time support of the basic research and training programs of the universities, medical schools, and hospitals. The academy suggests that a fixed percentage of funds received by the national organizations be returned to the contributing areas for such use and that a percentage of the national organizations' funds be contributed to the national fund for medical education.

Your committee recommends that the American Academy of Pediatrics assume leadership in promoting the ideas outlined in this

report and call a meeting in New York to which representatives of the national health agencies interested in specific disease and representatives of the medical schools and hospitals be invited to consider a possible solution.

STEWART H. CLIFFORD, M. D., *Chairman.*
WILLIAM W. BELFORD, M. D.
GEORGE M. WHEATLEY, M. D.

AMERICAN DRUG MANUFACTURERS ASSOCIATION,
Washington, D. C., January 9, 1957.

Mr. KURT BORCHARDT,
Legal Counsel, Committee on Interstate and Foreign Commerce, House of Representatives, Washington, D. C.

DEAR MR. BORCHARDT: In September 1956 you sent us a letter, suggesting that we survey the member firms of the American Drug Manufacturers Association to ascertain the extent of financial assistance given to medical schools by the pharmaceutical industry. Authorization from the executive committee of the association was received to conduct this study, provided that the figures of individual companies would not be disclosed.

We regret the delay in completing the work, caused by the necessity of waiting until practically all firms responded. Sufficient information has now been received so that we can be reasonably confident of the results.

In carrying out this study, we prepared and distributed a simple questionnaire to the member firms of the association. We interpreted the questions posed by your letter and its enclosure in a broad way, and attempted to cover the entire field of education in the medical and allied sciences. Many medical schools operate departments of biochemistry, bacteriology, and similar disciplines, and we trust that this type of broad approach meets with the spirit of your letter. Three copies of the questionnaire are enclosed, with totals for the industry filled in. Almost 90 percent of ADMA member firms have responded to the questionnaire by this date. We have rounded off the totals and weighted them to represent our best estimate of total pharmaceutical industry activity, not restricted to member companies alone.

It will be seen that the manufacturing pharmaceutical industry (not including that branch which makes drug products advertised to the general public, called the proprietary drug industry in the trade) in 1955 supported the schools of medical and allied sciences in the United States to the extent of about $10 million. Considering the fact that the individual companies in this area are not large when compared to the giant firms in such fields as food processing, soap, automotive, transportation, and communications, we feel that this contribution to education is most substantial.

Approximately one-fourth of the total contribution of pharmaceutical firms is donated to medical and other schools with no strings attached; expenses of conducting specific medical research projects are contained in the remaining sum. However, the entire amount, whether connected with specific research projects or not, may be

considered applicable to the overall operating budgets of the various educational institutions, and helps to support them.

It must be remembered that the figures given here represent only a small proportion of the total research effort of this industry—considerably less than 10 percent of the complete outlay for research. According to recent studies of the National Science Foundation, the drug industry spends a larger proportion of its sales dollar upon research than any other industry of comparable size. These large expenditures are made because the industry lives on medical research; to the normal business reasons must be added the humanitarian reasons for making all possible efforts to improve health and save life.

In our opinion, the conclusions reached here on industrial support of scholarships and fellowships are also significant. The industry covers the expenses of about one student in the medical and allied sciences for every five such graduates employed. This demonstrates that industry management recognizes the urgent need for training adequate numbers of doctors and scientists, and is taking constructive steps along that line. The remarkable increase in demand for trained scientists during the past 20 years is also shown by the figures in questionnaire B attached.

We are grateful for the opportunity which the Committee on Interstate and Foreign Commerce has given us to present these facts and observations, which are submitted for the record, and for any other use which you may wish to make of them. Please do not hesitate to inform us whenever we can be of further service.

Sincerely yours,

KARL BAMBACH, *Executive Vice President.*

TOTAL FIGURES FOR PHARMACEUTICAL MANUFACTURING INDUSTRY, JANUARY 9, 1957

QUESTIONNAIRES FOR HOUSE COMMITTEE SURVEY

In order to compile information requested on behalf of the House Committee on Interstate and Foreign Commerce, please complete these questionnaires as soon as possible and return one copy of each to the ADMA Washington office, 506 Albee Building, Washington 5, D. C.

Replies from individual firms will be held in strictest confidence. Only total compilations will be released to the House committee, and to those companies replying to these questionnaires.

Questionnaire A.—Grants and contributions in medical and related sciences (calendar year 1955 figures desired)

(1) Total grants or contributions to individual medical schools:

(*a*) For specifically defined research, clinical testing, or other projects: $3,000,000.

(*b*) For general purposes, as unrestricted financial support: $600,000.

(2) Total grants or contributions to institutions in the medical sciences and related fields, exclusive of the medical schools themselves:

(*a*) For specifically defined research, testing, or other projects: $3,600,000.

(*b*) For general purposes, as unrestricted financial support: $720,000 (institutions include schools of biochemistry, chemistry, pharmacy, bacteriology, biology, botany, zoology, physiology, veterinary medicine, pharmacology, etc.).

(3) Total contributions to organizations which in turn render financial assistance to medical schools (such as the National Fund for Medical Education): $550,000. (These figures should not include sums covered in items 1 or 2 above.)

(4) Total contributions to organizations which in turn render financial assistance to schools in the medical and related sciences, but not to the medical schools themselves (an example would be the American Foundation for Pharmaceutical Education): $430,000. (These figures should not duplicate those included in items 1, 2, or 3 above.)

(5) The total number of medical school fellowships or scholarships supported by the industry: 480.

(6) The total amount contributed to support the medical-school fellowships or scholarships in item 5 above: $470,000. (The figures for items 5 and 6 should not include fellowships or scholarships resulting from research or other grants already reported in the questionnaire.)

(7) The total number of fellowships or scholarships in the medical sciences and related fields (not including medical students) supported by the industry: 240. (Medical sciences and related fields include biochemistry, chemistry, pharmacy, bacteriology, biology, botany, zoology, physiology, veterinary medicine, pharmacology, etc.)

(8) The total amount contributed to support the fellowships or scholarships in item 7 above: $720,000. (The figures for items 7 and 8 should not include fellowships or scholarships resulting from research or other grants already reported in this questionnaire.)

Questionnaire B. Employment of physicians and other scientists

(1) Total number of employees with doctor of medicine degree: 380.

(2) Total number of employees with graduate degrees in medical or allied sciences (includes dentists, veterinarians, bacteriologists, biologists, biochemists, chemists, pharmacists, etc., possessing master's or doctor's degrees): 3,000.

(3) An estimate of the number of employees with doctor of medicine degree: Ten years ago: 155. Twenty years ago: 65.

(4) An estimate of the number of employees with graduate degrees in medical or allied sciences: Ten years ago: 990. Twenty years ago: 300.

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134. Replies to staff outline received from the Ford Foundation and the Commonwealth Fund (excerpts reproduced below). Medical Education in the United States and Canada. Journal of the American Medical Association 161: 1646, August 25, 1956.

The Ford Foundation today announced grants totaling $21,750,000 to strengthen instruction in the 44 privately supported medical schools now in operation in the United States.

The grants are in the amount of $500,000 to each of 43 4-year institutions and $250,000 to the 2-year medical school at Dartmouth

College, Hanover, N. H. They were authorized by the foundation's board of trustees upon the recommendations of a special advisory committee headed by Dr. Lee DuBridge, president of the California Institute of Technology.

The advisory committee was set up by the foundation to develop plans for distributing $90 million which the foundation appropriated last December to aid the instructional programs of the private medical schools.

The grants are to be held by the recipient institutions as invested endowment for at least 10 years. During this time the income from the endowment may be expended for instructional purposes. Excluded from purposes of the grants are construction and research needs. After a 10-year period the medical schools will be free to use the principal sum as well as endowment income.

In announcing the grants, the foundation indicated it expects to disburse the balance of the $90 million appropriation during the current academic year.

As you know, the Commonwealth Fund, has for some years been engaged in efforts to assist a number of medical schools in strengthening and improving their education programs. Grants for specific purposes have been made to some 40 such schools in the last 10 years, with this assistance during the last several years amounting to between $1,500,000 and $2 million annually. In the fiscal year which ended June 30, 1956, the fund appropriated $12,600,000 in unrestricted grants to 19 medical schools.

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135. See questions 136 to 139.

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136. Reply to staff inquiry received from Public Health Service, National Institutes of Health.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
PUBLIC HEALTH SERVICE, NATIONAL INSTITUTES OF HEALTH,
Bethesda, Md., December 19, 1956.

MR. KURT BORCHARDT,
Committee on Interstate and Foreign Commerce,
House of Representatives.

DEAR MR. BORCHARDT: The enclosed tables dealing with extramural awards by the National Institutes of Health will, we hope, provide you with the data that you need.

You will note that all of the support is represented as having a direct or an indirect impact on medical schools. We feel that the separation indicated and defined in the two footnotes is the most realistic way of providing you with useful information in this admittedly complex area. The numbers in parentheses indicate the number of separate awards in a particular program for that fiscal year.

Our programs are all medically oriented to a greater or lesser degree and thus serve to support research and training in a variety of fields, all of which are related to medicine and public health.

Please let me know if we can be of further service.

Sincerely yours,

C. J. VAN SLYKE, M. D.,
Associate Director, National Institutes of Health.

SUMMARY TABLE—*Public Health Service extramural awards having direct or indirect impact on medical schools in the United States (fiscal years 1951 through 1956)*

[In millions]

All NIH programs	Direct impact	Indirect impact	Total
Fiscal year 1951	$17.7	$7.6	$25.3
Fiscal year 1952	20.3	10.3	30.6
Fiscal year 1953	21.5	10.9	32.4
Fiscal year 1954	29.4	13.5	42.9
Fiscal year 1955	33.0	15.9	48.9
Fiscal year 1956	32.4	20.4	58.8
Total	160.3	78.6	[1] 238.9
CONSTRUCTION GRANTS			
Fiscal years 1948, 1949, 1950, Cancer Institute	$13.7	$2.6	$16.3
Fiscal year 1950, Heart Institute	4.4	1.6	6.0
Total	18.1	4.2	22.3

[1] This total exceeds congressional appropriations for these fiscal years by $4,500,000 due to the reaward of recovered funds.

Public Health Service extramural awards having direct [1] or indirect [2] impact on medical schools in the United States, fiscal years 1951 through 1956, inclusive

	1951		1952		1953		1954		1955		1956		1957, direct and indirect
	Direct	Indirect	Direct	Indirect	Direct	Indirect	Direct	Indirect	Direct	Indirect	Direct	Indirect	
Research grants	$11,774,827 (1,114)	$4,029,169 (544)	$14,038,629 (1,338)	$6,079,075 (643)	$14,863,650 (1,452)	$6,464,440 (700)	$20,155,112 (1,880)	$8,595,911 (912)	$23,345,202 (2,110)	$10,513,673 (1,065)	$26,470,100 (2,174)	$13,895,495 (1,232)	$89,682,000
Training grants and awards	4,330,583	2,681,786	4,671,653	3,173,101	4,904,860	3,231,036	7,095,360	3,860,510	7,468,913	4,125,059	9,751,805	4,971,209	28,075,000
Research fellowships	989,088 (351)	532,587 (187)	980,144 (309)	739,408 (231)	1,188,389 (329)	825,830 (231)	1,535,042 (354)	596,962 (136)	1,557,055 (432)	838,415 (234)	1,430,054 (430)	953,370 (285)	5,397,000
Field investigations	619,880 (47)	409,735 (21)	609,992 (36)	339,775 (25)	561,128 (36)	402,634 (26)	627,730 (47)	457,614 (30)	662,346 (41)	502,490 (34)	752,101 (47)	637,711 (38)	1,900,000
Total	17,714,378	7,653,277	20,300,418	10,331,359	21,518,027	10,923,940	29,413,244	13,510,997	33,033,516	15,979,637	38,404,060	20,457,785	125,054,000

[1] Awards made directly to medical schools and university hospitals and to research fellows for training in these same institutions.
[2] Awards made to institutions of higher learning, research institutes, and hospitals other than medical schools and university hospitals; includes also awards to research fellows for training in institutions other than medical schools and university hospitals.

Public Health Service extramural awards having direct or indirect impact on medical schools in the United States—Fiscal year 1957 appropriation

Research grants	$89, 682, 000
Training grants and awards	28, 075, 000
Research fellowships	5, 397, 000
Field investigations	1, 900, 000
Total	125, 054, 000

National Institutes of Health—Undergraduate teaching grants by appropriation—Fiscal years 1948–57

	Cancer	Heart	Mental health	Total
1948	$1, 524, 000			$1, 524, 000
1949	2, 036, 000			2, 036, 000
1950	2, 250, 000	$668, 000	$406, 000	3, 324, 000
1951	2, 250, 000	741, 000	499, 000	3, 490, 000
1952	2, 040, 000	741, 000	600, 000	3, 381, 000
1953	2, 225, 000	1, 373, 000	495, 000	4, 093, 000
1954	2, 355, 000	2, 628, 000	554, 000	5, 537, 000
1955	2, 225, 000	2, 362, 000	600, 000	5, 187, 000
1956	2, 225, 000	2, 362, 000	1, 022, 000	5, 609, 000
1957	2, 495, 000	2, 352, 000	2, 450, 000	7, 297, 000

137. Reply to staff inquiry received from Public Health Service, National Institutes of Health. See also question 136.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
PUBLIC HEALTH SERVICE, NATIONAL INSTITUTES OF HEALTH,
Bethesda, Md., January 4, 1957.

Mr. KURT BORCHARDT,
Interstate and Foreign Commerce Committee,
House of Representatives.

DEAR MR. BORCHARDT: This is in response to your telephone request for information concerning awards recommended for approval by the National Advisory Council under the health-research facilities program (Public Law 835).

I am enclosing a copy of the September and December press releases with the recommended approvals marked as follows:

(A) Medical schools or hospitals owned by medical schools;

(B) Hospitals affiliated with medical schools;

(C) Hospitals other than (A) or (B) having approved internships and residencies; and,

(—) Others (includes dental schools, veterinary schools, schools of Public Health, independent research institutes, biological science units of universities, etc.)

I trust this listing of recommended awards in the above categories will furnish sufficient information for your report to your committee.

If we can be of further service, please do not hesitate to call upon us.

Sincerely yours,

C. J. VAN SLYKE, M. D.,
Associate Director, National Institutes of Health.

The following tables were prepared on the basis of the information referred to in this letter.

Grants approved under the Health Research Facilities Act for construction of non-Federal health-research facilities, 1956.

Summary

Total of group (A)—46 projects	$17, 073, 673
Total of group (B)—7 projects	1, 271, 548
Total of group (C)—5 projects	1, 341, 272
Total of group (—)—22 projects	5, 539, 133
Grand total	25, 225, 626

(*A*) *Medical schools or hospitals owned by medical schools*

Institution	Facility	Amount
Albany Medical College of Union University, Albany, N. Y.	Construction of new animal quarters	$45, 000
University of Pennsylvania, Philadelphia, Pa.	The William H. Donner Center for Radiology	179, 004
University of Minnesota:		
Medical School, Minneapolis, Minn.	Department of anatomy research facilities; Jackson Hall.	26, 110
College of Medical Sciences, Minneapolis, Minn	Departments of physiological chemistry, physiology, and pharmacology research facilities; Millard Hall.	161, 000
Georgetown University, Washington, D. C.	Animal research laboratories	75, 000
University of Alabama Medical Center, Birmingham, Ala.	Clinical research laboratories; new 6-story research facilities building.	1, 033, 500
Stanford University Medical School, Stanford, Calif.	Basic science research building; new 3-story and basement medical research building.	1, 500, 000
University of Southern California, Los Angeles, Calif.	Medical research laboratories; new basic medical sciences building (4-story) for medical school.	854, 500
Yale University School of Medicine, New Haven, Conn.	New research laboratories for anatomy and biochemistry; addition of a 3-story and basement research wing to Sterling Hall of Medicine.	461, 612
University of Miami, Miami, Fla	Basic medical research laboratories; new 8-story medical science research building.	941, 720
Emory University School of Medicine, Emory University, Ga.	Medical research facilities for medical school; remodeling and expansion of research laboratory facilities.	200, 000
University of Chicago:		
Division of biological sciences	Medical research laboratories; remodeling of existing isolation facility into research laboratories.	250, 000
Division of biological sciences, Chicago, Ill.	Laboratory of physiological psychology; remodeling of an existing building.	22, 950
University of Illinois:		
Research laboratories, Chicago, Ill.	Research laboratories for studies in immunology; remodeling of present structure.	50, 000
Department of anatomy, Chicago, Ill.	Basic medical research laboratories; remodeling of anatomy laboratories.	2, 600
Department of biological chemistry, Chicago, Ill.	Biochemical research laboratories; remodeling of existing laboratories.	8, 500
Medicine-allergy unit, Chicago, Ill.	Basic research laboratories for allergy research; remodeling of existing laboratories.	8, 400
Indiana University; psychiatric research, Indianapolis, Ind.	Psychiatric research institute; to provide built-in equipment for the institute of psychiatric research.	36, 124
Indiana University, Bloomington, Ind.	Research animal-care facility; a new 1-story animal-care facility.	18, 375
Indiana University, Indianapolis, Ind.	Medical science building; basic scientific equipment grant for research areas of the medical science building.	109, 500
State University of Iowa:		
College of Medicine, Iowa City, Iowa.	Animal-care facilities for medical school; remodeling, equipping, and expanding of animal-care facilities.	75, 000
College of Medicine, Iowa City, Iowa	Medical research in otolaryngology; remodeling of present facilities.	20, 000
University of Kentucky, Lexington, Ky.	Research laboratories for basic sciences in medical school; new 6-story and basement medical sciences research building.	1, 208, 992
Johns Hopkins University, Baltimore, Md.	Basic science facilities for medical research; new 11-story and basement research building.	960, 000
Tufts College (Tufts University); deparment of biochemistry, Boston Mass.	Research laboratories, biochemistry and nutrition; remodeling 3 existing research laboratories.	19, 648
Wayne State University College of Medicine, Detroit, Mich.	Medical research laboratories; new 8-story and basement research wing on present structure.	900, 000

(*A*) *Medical schools or hospitals owned by medical schools*—Continued

Institution	Facility	Amount
University of Michigan, Ann Arbor, Mich.	Medical research facilities; remodeling 7th floor of research building.	58, 522
Do	Mental health research; new structure for research laboratories.	600, 000
Washington University Memorial Hospital, St. Louis, Mo.	Medical research laboratories; a 2-story addition to existing research building.	71, 005
New York University, Bellevue Medical Center, New York, N. Y.	Research in clinical medicine; remodeling existing laboratories in Bellevue Hospital.	75, 298
Columbia University, College of Physicians and Surgeons, New York, N. Y.	Animal-care facilities for medical school; remodeling and expansion of animal-care facilities.	366, 300
University of Buffalo School of Medicine, Buffalo, N. Y.	Basic science research laboratory; new 4-story research laboratory.	463, 020
Duke University, Durham, N. C	Medical research laboratory; addition of a new 4-story wing to William B. Bell Medical Research Building.	105, 000
University of Cincinnati, College of Medicine, Cincinnati, Ohio.	Medical research facility; new medical research building.	865, 688
Ohio State University, College of Medicine, Columbus, Ohio.	Medical research facility; new 11-story research laboratory addition to existing building.	900, 000
Jefferson Medical College of Philadelphia, Philadelphia, Pa.	Research laboratory for blood and plasma fractionation; remodeling of second floor of existing building into laboratories.	24, 572
Do	Department of surgery research laboratories; remodeling of portion of 10th floor to provide surgical research laboratories.	51, 883
Do	Psychiatric research laboratories; remodeling of portion of 10th floor to provide laboratories for the psychiatric department.	22, 235
Do	Basic science research laboratories; remodeling of 3d floor of existing structure into research laboratories.	30, 755
University of Pittsburgh, Pittsburgh, Pa.	Basic health research laboratory; completion of new laboratories and installation of equipment.	649. 312
University of Pennsylvania, medical division, Philadelphia, Pa.	New research facilities for the school of medicine; new 7-story research laboratory plus portions of 2 other new structures.	400, 000
Vanderbilt University School of Medicine, Nashville, Tenn.	Medical research facility; expansion, remodeling, and equipping of health, research facilities.	173, 548
University of Utah College of Medicine, Salt Lake City, Utah.	Basic medical research laboratories; new medical-science research building.	1, 500, 000
University of Vermont, Burlington, Vt.	Clinical and pathological research laboratories for the college of medicine; new 2-story building.	419, 000
University of Washington, Seattle, Wash.	Basic medical science research laboratories; remodeling and completion of existing structures.	155, 000
University of Wisconsin Medical School, Madison, Wis.	Clinical research facility; new 8-story research building.	975, 000
Total		17, 073, 673

(*B*) *Hospitals affiliated with medical schools*

Institution	Facility	Amount
Massachusetts General Hospital, Boston, Mass.	Neurosurgical floor, Warren Medical Science Building.	$95, 045
Baltimore City Hospitals, Baltimore, Md.	Medical research laboratory; conversion of tuberculosis building to a research laboratory building.	115, 000
The Boston Dispensary, Boston, Mass.	Rehabilitation research laboratory; addition of 1 research floor to research building under construction.	125, 000
Massachusetts General Hospital, Boston, Mass.	Psychiatric research and teaching laboratory; completion of an unfinished research laboratory, 6th floor, Warren Building.	86, 503
Retina Foundation, 30 Chambers St., Boston, Mass.	Basic research laboratory in field of diseases of the eye; new basement and 3-story research building.	300, 000
New England Center Hospital, Boston, Mass.	Medical science research laboratory; completion of 4 unfinished floors into research laboratories.	400, 000
The Woods School, Langhorne, Pa	Center for child study, treatment and research; new research laboratory building.	150, 000
Total		1, 271, 548

(C) Hospitals other than (A) or (B) having approved internships and residencies

Institution	Facility	Amount
National Jewish Hospital at Denver, Colo.	Medical research facilities; new medical research laboratory building.	$250,000
Children's Hospital, Washington, D. C.	To increase research activities and improve the diagnosis and treatment of pediatric diseases; 6th floor addition to existing building, and 3d floor addition to planned new building.	144,625
New England Deaconess Hospital, Boston, Mass.	Additional space for animal-care facilities; addition of 1 floor to existing laboratory.	120,000
Austen Riggs Center, Inc., Stockbridge, Mass.	Psychiatric research and treatment; extensive remodeling and addition of wings to existing building.	180,647
Roswell Park Memorial Institute, State of New York, Department of Health, Buffalo, N. Y.	Basic science research institute in the field of cancer and allied diseases; new 7-story basic science research building.	646,000
Total		1,341,272

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138. Reply to staff inquiry received from Division of Hospital and Medical Facilities, Bureau of Medical Services, Public Health Service.

Summary sheet as of Nov. 1, 1956

	Projects [1]		Construction costs			
	Number of projects	Percent	Total cost	Percent	Federal share	Percent
Total projects to date	3,110	100.0	$2,524,304,826	100.0	$798,743,741	100.0
Projects in medical schools and universities	66	2.1	164,184,734	6.5	37,885,408	4.7
Projects in facilities affiliated with medical schools and universities	91	2.9	151,197,701	6.0	32,359,418	4.1
Projects in other teaching hospitals approved for intern and resident training	356	11.5	575,664,207	22.8	150,819,802	18.9

[1] Projects listed in the 3 tables that follow.

Federally aided hospital construction in medical schools and universities under the hospital and medical facilities survey and construction program as of Nov. 1, 1956

Name	Location	Estimated total cost	Federal share	Remarks
Alabama: University of Alabama Memorial Dental Clinic.	Birmingham	$2,523,721	$420,811	The dental clinic building provides the only dental facilities within the hospitals comprising the University of Alabama Medical Center.
Arkansas:				
University of Arkansas Medical Center	Little Rock	8,879,190	2,400,000	This project is a new 400-bed teaching hospital.
Do	do	315,064	157,532	This project consists of the equipment for the diagnostic and treatment center at the new medical center.
California: Stanford University rehabilitation facility.	Palo Alto	1,483,783	267,327	As part of the Stanford University School of Medicine, this facility offers evaluation and treatment of outpatients and inpatients with followup services.
District of Columbia:				
Warwick Cancer Clinic	Washington	668,996	18,414	This project is a unit of the George Washington University Hospital supplying diagnostic and treatment services for ambulatory patients with all types of cancer.
George Washington University Hospital	do	224,534	30,000	This project is an addition and alteration to the radiology department.
Georgetown University Nurses Home	do	1,719,770	314,138	This project is a nurses dormitory of 210 beds for the University hospital.
Florida: J. Hillis Miller rehabilitation facility	Gainesville	7,889,462	158,146	This new facility integrated with the University of Florida teaching hospital will be used for outpatients and inpatients.
Georgia:				
University Hospital	Augusta	1,066,431	460,455	This project included remodeling and alteration of this teaching hospital, relocation and expansion of some departments and addition of 10 beds.
Emory University Clinic	Emory	1,597,228	145,646	This project concerns equipment only. The diagnostic and treatment center provides outpatient services.
Illinois: University of Chicago Clinics	Chicago	3,750,000	535,440	This is a new 167-bed hospital for the degenerative diseases attached to the Billings Hospital plant of the University of Chicago Clinics.
Indiana: Indiana University Medical Center	Indianapolis	4,005,552	1,353,910	This is an auxiliary facility providing food service to the patients and staff of several units of the university hospital.
Iowa:				
State University of Iowa Hospital	Iowa City	1,569,383	454,423	The State university hospital is the consultation center for the entire State of Iowa.
Do	do	553,466	184,489	This project includes a 54-bed addition to the acute isolation ward of the general and children's hospital and alteration of the pediatric clinic of the latter.
Kansas:				
University of Kansas Children's Rehabilitation Center.	Kansas City	325,000	100,000	As a part of the University of Kansas Medical Center, this project gives rehabilitation services to handicapped children and offers educational services as well.
University of Kansas Medical Center	do	1,083,100	401,240	As a part of the University of Kansas Medical Center, this project has 77 beds and is designed for the care and treatment of psychiatric patients.
Do	do	1,815,058	321,240	This is a new facility of 76 beds for the purposes of diagnosis and treatment of tuberculosis and teaching.

Federally aided hospital construction in medical schools and universities under the hospital and medical facilities survey and construction program as of Nov. 1, 1956—Continued

Name	Location	Estimated total cost	Federal share	Remarks
Maryland:				
Johns Hopkins Hospital and University	Baltimore	919,362	298,865	This project pertains to the installation of 2 elevators completing the 11th, 12th, and 13th floors.
Johns Hopkins Hospital	do	568,000	189,333	This is an 11-bed addition to the 142 present beds rehabilitating the delivery and operating room for the women's clinic.
University of Maryland psychiatric unit	do	3,796,680	523,144	This is a new 73-bed unit of the university hospital with facilities for diagnosis and treatment of psychiatric patients.
University of Maryland Hospital	do	1,312,221	437,407	This project expands the inpatient ancillary facilities of the university hospital.
Minnesota:				
University of Minnesota and Mayo Memorial Medical Center.	Minneapolis	11,677,596	2,000,000	This project adds 106 beds to the present University of Minnesota Hospital.
University of Minnesota health service	do	905,816	295,853	This is a public health center on the University of Minnesota campus.
Variety Club Heart Hospital	do	1,400,507	381,672	This 78-bed facility operated by the University of Minnesota in the care of inpatients and outpatients for all types of heart and cardiovascular disease.
Mississippi: University teaching hospital	Jackson	5,000,000	3,000,000	This is a new 350-bed general teaching hospital with outpatient clinic facilities.
Missouri:				
University of Missouri nursing home	Columbia	470,202	100,000	This is a nurses dormitory connected with the University of Missouri teaching hospital and provides quarters for students.
Kansas City College of Osteopathy and Surgery.	Kansas City	250,000	125,000	This is an addition to a diagnostic and treatment center providing outpatient clinical facilities for patients of the clinic.
Kirksville College of Osteopathy and Surgery.	Kirksville	1,055,989	351,996	This project is a 100-bed addition to a present 40-bed general hospital. It will provide a laboratory and outpatient department with teaching facilities.
Renard Hospital—Washington University.	St. Louis	1,580,575	786,094	This is a new 100-bed facility with laboratory and outpatient psychiatric units.
Nebraska:				
University of Nebraska, psychiatric unit	Omaha	1,655,078	518,974	This is a new 90-bed facility providing psychiatric treatment for mental patients of all types, with teaching and research facilities as part of the college of medicine.
Creighton University St. Joseph Hospital	do	2,189,443	198,515	This project pertains to the installation of a boiler and equipment in St. Joseph Hospital, the teaching facility of Creighton.
New York:				
New York University Bellevue Medical Center.	New York	1,114,000	100,000	This project will provide additional chronic disease facilities for the Institute of Physical Medicine and Rehabilitation.
Do	do	1,114,000	182,400	This project will provide additional rehabilitation facilities for the Institute of Physical Medicine and Rehabilitation.
North Carolina:				
Duke University Hospital	Durham	4,102,599	480,000	This is a 100-bed addition to a present 540-bed general hospital with intensive outpatient department and auxiliary facilities. It also provides enlarged and improved facilities for the part-pay clinic.

Elizabeth P. Hanes House of Nurses	do	834,190	364,747	This is a nurses' building with 270 beds and classrooms for nurses' instruction as part of Duke Hospital and Duke University School of Medicine.
Duke University Hospital	do	70,000	35,000	This is a diagnostic and treatment center as an adjunct to the present outpatient clinic of Duke University Hospital.
North Dakota Medical Center	Grand Forks	282,908	100,000	This is an outpatient rehabilitation facility of the University of North Dakota Medical School.
Do	do	49,160	22,614	This is an outpatient diagnostic and treatment center of the Universtiy of North Dakota Medical School.
Ohio: University hospitals	Cleveland	2,720,097	500,000	This project will provide a 91-bed addition to a 710-bed facility for psychiatric patients and the outpatient facilities will be expanded.
Oklahoma:				
University of Oklahoma School of Medicine.	Oklahoma City	105,261	35,087	This project is for equipment only for the general hospital section, new addition, and other areas.
Do	do	1,496,700	897,358	This is a 60-bed psychiatric and outpatient addition to a 464-bed existing general hospital.
University of Oklahoma School of Medicine Nursing Home.	do	254,752	152,851	This is a 92-bed addition to an 88-bed nurses' home and teaching facility for the University of Oklahoma School of Medicine and university hospitals.
University hospitals	do	190,345	95,172	This project is a single disability rehabilitation facility for speech and hearing defects, and will be operated as a part of the existing teaching hospital.
Oregon:				
University of Oregon Diagnostic and Treatment Center.	Portland	348,719	56,028	This project is to remodel the Doernbecher Memorial Hospital, to provide clinic and laboratory functions, and to serve as a teaching training center.
Do	do	217,148	70,329	This project is for equipment of an outpatient clinic of the Dental School of the University of Oregon and it provides diagnostic and treatment services for ambulatory patients.
Pennsylvania:				
Woman's Medical College of Pennsylvania.	Philadelphia	698,759	279,503	This project will house 63 student nurses and 20 personnel and will provide a 42-bed patient unit for convalescent and long-term illness in the existing hospital.
Diagnostic Center of the University of Pennsylvania.	do	6,868,647	1,901,257	This project is an outpatient diagnostic clinic and a related teaching facility.
Temple University Hospitals	do	7,889,925	1,292,782	This is a 364-bed addition to an existing 453-bed facility with an outpatient department and many clinics.
University of Pennsylvania rehabilitation facility.	do	350,000	100,000	This center serves as a teaching facility and provides rehabilitation services to inpatients and outpatients in both adults and children.
South Carolina: Medical College Hospital	Charleston	10,809,142	5,851,202	This is a 423-bed teaching hospital which also provides an outpatient department laboratory.
Tennessee: Les Passees Diagnostic and Treatment Center.	Memphis	188,090	97,500	In connection with the University of Tennessee College of Medicine, this project is an outpatient diagnostic and treatment facility for children with neuromuscular disabilities.
Texas:				
John Sealy Hospital	Galveston	13,355,765	2,250,000	In connection with the University of Texas, this project will add 101 beds to the present teaching hospital of 558 beds.
M. D. Anderson Cancer Clinic	Houston	9,828,468	2,025,000	This is a new 300-bed facility for cancer or allied diseases in connection with the University of Texas Medical Center.
Do	do	462,548	231,274	This portion of the project offers adjunct service facilities for the detection and treatment of cancer.
Do	do	314,452	157,226	This portion of the project offers complete facilities for the diagnosis and treatment of cancer.

Federally aided hospital construction in medical schools and universities under the hospital and medical facilities survey and construction program as of Nov. 1, 1956—Continued

Name	Location	Estimated total cost	Federal share	Remarks
Virginia:				
University of Virginia Hospital	Charlottesville	$735,302	$391,916	This is a 56-bed addition to a 490-bed general hospital.
University of Virginia Child Rehabilitation Center.	do	491,000	195,293	As a part of the University of Virginia Hospital this center offers rehabilitation services to handicapped children, and as a referral center.
Medical College of Virginia	Richmond	274,872	91,624	This project is a 27-general bed addition to an existing 600-bed hospital and will provide surgical and medical services.
Washington:				
University of Washington Hospital	Seattle	6,946,996	806,509	This is a 140-bed facility with an outpatient department and clinical laboratories.
Do	do	2,844,743	600,000	As the first unit of the Washington University Teaching Hospital, this 24-bed facility has facilities for ambulatory and outpatient referrals.
Do	do	2,002,309	500,000	This unit of the hospital is a diagnostic and treatment unit with an outpatient department and is designed to care for ambulatory patients.
West Virginia:				
West Virginia University Medical Center	Morgantown	1,857,564	314,996	This facility will provide 143 chronic disease beds for long-term patients.
Do	do	999,920	114,996	This project offers rehabilitation services to inpatients and outpatients with multiple disabilities.
Do	do	1,813,640	200,000	This is an outpatient facility with over 60 examining rooms. It includes facilities for general medical clinics and for various medical specialties.
Do	do	9,528,876	370,487	This is a 328-bed addition to a 520-bed hospital which is the teaching hospital of the university medical school. It will provide diagnostic and treatment, rehabilitation, and chronic disease services.
Wisconsin: Dental rehabilitation unit	Milwaukee	782,630	92,212	As part of the Marquette University School of Dentistry, this project serves patients in dental rehabilitation programs and is also used for training dental students.

Federally aided construction of medical facilities, affiliated with universities and schools of medicine, under the hospital and medical facilities

Federally aided construction of medical facilities, affiliated with universities and schools of medicine, under the hospital and medical facilities survey and construction program as of Nov. 1, 1956

Name	Location	Estimated total cost	Federal share	Remarks
Colorado: Presbyterian Hospital, diagnostic and treatment center.	Denver	$311,778	$135,000	Primarily an outpatient department for the subject hospital which serves as a teaching facility for medical students from the University of Colorado School of Medicine.
Connecticut:				
Grace-New Haven Community Hospital	New Haven	7,895,707	200,000	This project is for equipment only for a new 325-bed hospital which serves as a teaching facility for medical students from Yale University School of Medicine.
Do	do	1,096,385	200,000	A school of nursing for the subject hospital which serves as a teaching facility for students from Yale University School of Medicine.
Do	do	59,878	19,959	A women's outpatient diagnostic and treatment center which serves as a teaching clinic for medical students from Yale University School of Medicine.
Do	do	35,990	10,000	A hearing and speech center providing diagnostic and outpatient treatment which serves as a teaching facility for medical students from Yale University School of Medicine.
District of Columbia:				
District of Columbia General Hospital	Washington, D. C	2,432,909	525,914	This project is a 54-bed addition to an existing general hospital which serves as a teaching hospital for medical students from Georgetown University and George Washington University Hospital Schools of Medicine.
Do	do	7,800	2,600	This project consists of installation of air-conditioning units to improve service in the hospital which serves as a teaching facility for medical students from Georgetown University and George Washington University Schools of Medicine.
Florida: Jackson Memorial Hospital	Miami	4,538,317	1,263,500	This project provides 195 additional beds to a 599-bed general hospital which serves as a teaching facility for medical students from the University of Miami School of Medicine.
Georgia: Hughes-Spalding unit of the Grady Hospital.	Atlanta	1,725,984	1,035,590	A new 116-bed general hospital unit of the Grady Memorial Hospital which serves as a teaching facility for medical students from the Emory University School of Medicine.
Illinois:				
Chicago Wesley Memorial Hospital	Chicago	4,000,000	182,783	A psychiatric ward providing a 50-bed addition to an existing 572-bed general hospital serving as a teaching facility for medical students from Northwestern University School of Medicine.
Presbyterian Hospital	do	5,500,000	82,650	This project is a 33-bed neuromental unit addition to a 589 general bed hospital which serves as a teaching facility for medical students from the University of Illinois College of Medicine.
Mount Sinai Hospital of Chicago	do	10,000	3,889	This project is for equipment only for a 18-bed psychiatric unit which serves as a teaching facility for medical students from the Chicago School of Medicine.
Evanston Hospital	Evanston	509,640	49,600	This is a 24-bed addition to a 329-bed mental hospital which serves as a teaching facility for medical students from the Northwestern University School of Medicine.
Do	do	327,360	84,333	This is a diagnostic and treatment facility constructed in connection with the mental hospital used as a teaching facility for medical students from the Northwestern University School of Medicine.

Federally aided construction of medical facilities, affiliated with universities and schools of medicine, under the hospital and medical facilities survey and construction program as of Nov. 1, 1956—Continued

Name	Location	Estimated total cost	Federal share	Remarks
Iowa: Mercy Hospital	Council Bluffs	$883,000	$270,000	This remodeling project will provide 181 additional acceptable beds making a 220-bed facility listed by the American Hospital Association Directory as a teaching facility affiliated with a medical school. (School not identified.)
Kentucky:				
Louisville General Hospital	Louisville	201,782	67,260	Primarily this project improved the outpatient facilities of the Louisville General Hospital which serves as a teaching facility for medical students from University of Louisville School of Medicine.
Medical Center	Louisville	840,228	327,498	This project is to provide a new powerplant to serve the Louisville Medical Center which serves as a teaching facility for medical students from the University of Louisville School of Medicine.
Louisville General Hospital	do	2,000,000	1,000,000	An 80-bed addition to, and remodeling of the Louisville General Hospital which will result in a 392 general bed and 36 mental bed capacity which serves as a teaching facility for medical students from the University of Louisville School of Medicine.
Louisiana:				
Charity Hospital of Louisiana	New Orleans	510,800	292,500	This project provides for the remodeling of the neuropsychiatric unit to th Charity Hospital providing 153 additional beds which serves as a teaching facility for medical students from the Louisiana State University School of Medicine.
Touro Infirmary	do	2,404,378	714,615	This project is an expansion of an existing general 372-bed hospital by adding 106 beds which serves as a teaching facility for medical students from Tulane University of Louisiana School of Medicine.
Charity Hospital of Louisiana	do	488,099	313,342	A male interns' dormitory consisting of 100 beds as part of the Charity Hospital of Louisiana which serves as a teaching facility for medical students from the Louisiana State University School of Medicine.
Maryland: Prince Georges General Hospital	Cheverly	1,264,298	413,650	This project is a 128-bed addition to the existing Prince Georges 102 general bed hospital which serves as a teaching facility for medical students from the Georgetown University School of Medicine.
Massachusetts:				
Judge Baker Guidance Center	Boston	169,242	67,697	This project is the new diagnostic and treatment center for the chronic psychiatric and mental diseases of children which is affiliated with Harvard Medical School.
Boston Dispensary Rehabilitation Center	do	948,054	307,367	A rehabilitation dispensary affiliated with Tufts College Medical School.
Peter Bent Brigham Hospital	do	330,000	132,000	This project provides a laboratory as an addition to a 280-bed chronic-disease hospital which serves as a teaching facility for medical students from the Harvard Medical School.
The Children's Hospital	do	691,695	227,832	A 64-bed addition and alteration to the Children's Hospital with a 274-bed capacity which serves as a teaching facility for medical students from the Harvard School of Medicine.
New England Center Hospital	do	204,799	81,816	A pathology laboratory which serves as a teaching facility for medical students from the Tufts College School of Medicine.
The Massachusetts General Hospital	do	1,995,291	250,000	A new pathology laboratory as an adjunct service facility of the Massachu-

The Massachusetts General Hospital	do	1,995,291	250,000	A new pathology laboratory as an adjunct service facility of the Massachusetts General Hospital which serves as a teaching facility for medical students from the Harvard School of Medicine.
The Children's Hospital	do	234,982	43,114	This project is for adjunct service facilities for the laboratories connected with the Children's Hospital which serves as a teaching facility for medical students from Harvard School of Medicine.
Judge Baker Guidance Center	do	72,472	28,989	This project is a 32-bed mental hospital to be operated in conjunction with the diagnostic and treatment center affiliated with Harvard Medical School.
Beth Israel Hospital	do	838,080	275,000	This project is for equipment only to be used in an addition to the Beth Israel Hospital which serves as a teaching facility for medical students from Harvard University School of Medicine and Tufts College Medical School.
Peter Bent Brigham Hospital	do	285,858	95,286	This project is an addition of 34 beds to a 250-bed general hospital which serves as a teaching facility for medical students from the Harvard School of Medicine.
Do	do	171,483	70,308	This project is for the improvement of facilities in the existing outpatient department of this hospital which serves as a teaching facility for medical students from the Harvard School of Medicine.
St. Elizabeths Hospital	Brighton	1,001,559	116,635	This project is for new equipment for altered space including nursing unit and common facilities in the St. Elizabeths Hospital which serves as a teaching facility for medical students from Tufts College School of Medicine.
Missouri:				
Menorah Hospital	Kansas City	2,558,044	482,697	This is a 132-bed addition to an existing 150-bed general hospital which serves as a teaching facility for medical students from the University of Kansas School of Medicine.
Kansas City General	do	1,072,870	535,933	This project is a new 82-bed psychiatric receiving center, an addition to the existing 659 beds of the Kansas City General Hospital which serves as a teaching facility for medical students from the University of Kansas School of Medicine.
St. Louis Children's Hospital	St. Louis	2,957,962	813,440	This project will consist of a 60-bed addition to this 136-bed existing hospital which serves as a teaching facility for medical students from the St. Louis University School of Medicine.
Nebraska:				
The Immanuel Deaconess Institute School of Nursing.	Omaha	578,821	285,655	This project provides 99 nursing student beds furnishing teaching facilities for approximately 120 student nurses. The Deaconess Hospital serves as a teaching facility for the University of Nebraska School of Medicine.
Bishop Clarkson Memorial Hospital	do	4,694,237	284,398	This project is for equipment only for the new 300-bed hospital which is immediately adjacent to the campus of the University of Nebraska College of Medicine and serves as a teaching facility for medical students from that school.
The Immanuel Deaconess Institute (Immanuel Hospital).	do	1,213,625	230,000	This project consists of a 33-bed addition to this 150-bed general hospital which serves as a teaching facility for medical students from the University of Nebraska College of Medicine.
Do	do	391,955	125,000	A diagnostic and treatment facility as part of the Immanuel Hospital which serves as a teaching facility for medical students from the University of Nebraska College of Medicine.

Federally aided construction of medical facilities, affiliated with universities and schools of medicine, under the hospital and medical facilities survey and construction program as of Nov. 1, 1956—Continued

Name	Location	Estimated total cost	Federal share	Remarks
New Hampshire:				
Mary Hitchcock Memorial Hospital	Hanover	$906,170	$302,056	This is a 35-bed addition to the present nurses' home of 115 beds which is essential to the school of nursing. The Mary Hitchcock Memorial Hospital serves as a teaching facility for medical students from the Dartmouth Medical School.
Do	do	2,112,967	645,465	This project is a new 88-bed wing to the present 175-bed general hospital and includes remodeling to existing areas in the hospital which serves as a teaching facility for medical students from Dartmouth Medical School.
Do	do	96,172	48,086	This project is an addition of service facilities to the existing 29-bed nursing home, a part of the Mary Hitchcock Memorial Hospital which serves as a teaching facility for medical students from Dartmouth School of Medicine.
Do	do	194,106	97,053	This project is an addition to the diagnostic and treatment facilities of this hospital which serves as a teaching facility for medical students from the Dartmouth School of Medicine.
New York:				
Albany Hospital	Albany	4,246,389	1,415,463	This project is a new 128-bed addition to this 519-bed general hospital which serves as a teaching facility for medical students from the Albany Medical College.
Kings County Hospital	Brooklyn	89,327	29,776	This project provides equipment only for a new premature nursery center for the subject hospital which serves as a teaching facility for medical students from the State University of New York College of Medicine.
Maimonides Hospital of Brooklyn	do	56,186	18,729	This is the renovation of a premature nursery which is a unit of Maimonides Hospital which serves as a teaching facility for medical students of the State University of New York College of Medicine.
The Mary Imogene Bassett Hospital	Cooperstown	1,477,290	492,430	This project consists of an alteration to the existing 88-bed general hospital providing 26 additional beds and additional adjunct facilities. This hospital serves as a teaching facility for medical students from the Albany Medical College.
St. Vincent's Hospital	New York City	2,492,282	490,987	This project consists of a separate psychiatric pavilion and an outpatient clinic as a part of St. Vincent's General Hospital which serves as a teaching facility for medical students from New York University, College of Medicine.
Montefiore Hospital for Chronic Diseases.	Bronx	2,460,650	372,187	This project covers the redesigning and reequipping of existing facilities with a net gain of 30 beds. The Montefiore Hospital serves as a teaching facility for medical students from Columbia University College of Physicians and Surgeons.
The Mount Sinai Hospital	New York	274,322	91,448	This is a fractional project for a premature nursery unit in connection with a new maternity wing of the Mount Sinai Hospital. It serves as a teaching facility for medical students from Columbia University College of Physicians and Surgeons.
Presbyterian Hospital	do	74,858	24,953	This project is for equipment for a 20-bed premature nursery for the Presbyterian Hospital. It serves as a teaching facility for medical students from Columbia University College of Physicians and Surgeons.
Bellevue Hospital	do	$52,171	$17,390	This project is for equipment for a 35-bed premature nursery in the remod-

Bellevue Hospital	do	$52,171	$17,390	This project is for equipment for a 35-bed premature nursery in the remodeled maternity wing of Bellevue Hospital which serves as a teaching facility for medical students from Columbia University College of Physicians and Surgeons.
St. Vincent's Hospital	New York City	91,780	30,594	This project is for a premature nursery of 30 bassinets in connection with a maternity wing of St. Vincent's Hospital which serves as a teaching facility for medical students from New York University College of Medicine.
The Presbyterian Hospital	New York	104,582	34,861	This project is an addition of a 15-bed contagious-disease unit for the Presbyterian Hospital. It serves as a teaching facility for medical students from Columbia University College of Physicians and Surgeons.
The Roosevelt Hospital	do	2,275,411	568,392	This project is for service facilities for the outpatient department of the subject hospital which serves as a teaching facility for medical students from Columbia University College of Physicians and Surgeons.
Abraham Jacobi Hospital (East Bronx General Hospital).	do	18,431,163	65,500	This project is a new unit providing for a premature infant center of 36 beds. This hospital has 766 general beds and 1,932 mental. This facility is the teaching center for the Yeshiva Medical College.
Montefiore Hospital	Bronx	1,483,600	158,200	This project is an addition of 20 psychiatric beds and outpatient facilities to the subject hospital, which serves as a teaching facility for medical students from Columbia University College of Physicians and Surgeons.
Mount Sinai Hospital	New York City	265,000	88,333	This project provides service facilities for a diagnostic and treatment center as a part of the subject hospital. It serves as a teaching facility for medical students from the Columbia University College of Physicians and Surgeons.
Montfiore Hospital	Bronx	1,009,000	100,000	This project is an addition of 114 chronic-disease beds to the subject hospital, which serves as a teaching facility for medical students from Columbia University College of Physicians and Surgeons.
Highland Hospital	Rochester	1,434,709	473,711	This project is a new 76-bed addition to the Highland General Hospital. It serves as a teaching facility for medical students from the University of Rochester School of Medicine.
Rochester General Hospital (North Side branch).	do	4,981,172	1,306,667	This is a new 250-bed general hospital which serves as a teching facility for medical students from the University of Rochester School of Medicine.
Strong Memorial Hospital	do	730,670	210,403	This project is a new wing of the subject hospital, providing additional laboratory, clinical, physiotherapy, and orthopedic facilities. It serves as a teaching facility for medical students from the University of Rochester School of Medicine.
North Carolina:				
Memorial Hospital	Chapel Hill	300,000	150,000	This is a diagnostic and treatment addition to the present outpatient and inpatient psychiatric facilities. The subject hospital serves as a teaching facility for medical students from the University of North Carolina Medical School.
Watts Hospital	Durham	2,583,123	910,800	This project involves an addition and alteration of existing facilities which will provide 105 new general hospital beds with adequate service facilities. The subject hospital serves as a teaching facility for medical students from the University of North Carolina School of Medicine.
Lincoln Hospital	do	758,162	333,520	This project involves an alteration and addition of 35 beds and central service facilities and an outpatient department to the subject hospital which serves as a teaching facility for medical students from Duke University School of Medicine.
Watts Hospital	do	300,000	146,275	This project involves an addition to existing facilities for the 300 general bed Watts Hospital which serves as a teaching facility for medical students from the University of North Carolina School of Medicine.

Federally aided construction of medical facilities, affiliated with universities and schools of medicine, under the hospital and medical facilities survey and construction program as of Nov. 1, 1956—Continued

Name	Location	Estimated total cost	Federal share	Remarks
North Carolina—Continued				
Rex Hospital	Raleigh	$277,131	$110,000	This project provides a boiler plant and laundry to the subject hospital o 272 general beds. This hospital serves as a teaching facility for medical students from the University of North Carolina School of Medicine.
Do	do	691,300	337,272	This project will provide an addition of 30 beds to the subject hospital which serves as a teaching facility for medical students from the University of North Carolina School of Medicine.
Pennsylvania:				
Harrisburg Hospital	Harrisburg	4,460,586	1,712,031	This project involves alterations of the existing facilities which will be used for outpatients, clinics, X-ray, and laboratory. The subject hospital of 492 general beds serves as a teaching facility for medical students from Hahnemann Medical College and Hospital of Philadelphia.
Methodist Episcopal Hospital	Philadelphia	266,632	106,653	This project is a new building for nurses' training facilities and also provides a new enlarged laboratory. The subject hospital is a teaching hospital affiliated with the Jefferson Medical College of Philadelphia.
St. Francis Hospital	Pittsburgh	5,607,800	359,026	This project is a rehabilitation facility providing medical, psychological, social, and vocational services in connection with St. Francis Hospital, a 723-bed general hospital. This hospital serves as a teaching facility for medical students from the University of Pittsburgh School of Medicine.
South Dakota:				
Sioux Valley Hospital	Sioux Falls	358,588	173,718	This project is an addition providing 30 additional beds and some central service facilities to the subject hospital which serves as a teaching facility for medical students from the University of South Dakota School of Medical Sciences.
McKennon Hospital	do	1,711,434	285,000	This project is an 11 general bed alteration with a 27 mental bed addition to the subject hospital which serves as a teaching facility for medical students from the University of South Dakota School of Medicine.
Sioux Valley Hospital	do	498,779	111,282	This project will provide additional facilities for inpatients and outpatients and new laboratory facilities to the subject hospital which serves as a teaching facility for medical students from the University of South Dakota School of Medicine.
Texas				
Brackenridge Hospital	Austin	3,230,000	1,500,000	This project involves a new addition of 112 beds to the existing subject hospital which serves as a teaching facility for medical students from the University of Texas School of Medicine.
Memorial Hospital (Parkland Memorial)	Dallas	11,080,090	1,500,000	This is a fractional project providing 564 new general hospital beds. The Memorial Hospital serves as a teaching facility for medical students from the University of Texas Southwestern Medical School.
Parkland Memorial	do	1,184,000	508,000	This project is a diagnostic and treatment outpatient clinic of Dallas County Hospital District, which serves as a teaching facility for medical students from the University of Texas Southwestern Medical School and the Texas State College for Women School of Nursing.
Rose Henry Ziegler	Galveston	843,402	404,500	This project provides 60 new tuberculosis beds operated in connection with

Rose Henry Ziegler	Galveston	843,462	404,500	This project provides 60 new tuberculosis beds operated in connection with the University Hospital which serves as a teaching facility for medical students from the University of Texas School of Medicine.
Jefferson Davis Hospital	Houston	220,176	100,000	This project is a 60-polio-bed addition to the subject hospital which serves as a teaching facility for medical students from Baylor University College of Medicine.
Robert B. Green Memorial Hospital	San Antonio	2,434,790	1,163,162	This is an addition and alteration providing 197 additional acceptable beds and serves as a teaching facility for medical students from the University of Texas School of Medicine.
Utah:				
Holy Cross Hospital	Salt Lake City	1,286,304	578,838	This project completes the new school of nursing building which provides classrooms and resident facilities for approximately 150 students and also completes alteration of boiler plant and laundry to the subject hospital which provides teaching facilities for medical students from University of Utah School of Medicine.
St. Marks Hospital	do	491,047	220,935	This project provides additional outpatient facilities, service facilities, as well as 24 additional beds to the subject hospital which serves as a teaching facility for medical students from the University of Utah School of Medicine.
Salt Lake County General	do	652,280	286,349	This project is an additional to provide 30 additional beds and to improve central service facilities. The subject hospital serves as a teaching facility for medical students from the University of Utah School of Medicine.
Vermont: Mary Fletcher Hospital	Burlington	2,525,455	780,106	This project is a 158-bed addition to an existing 102-bed facility. The subject hospital serves as a teaching facility for medical students from the University of Vermont College of Medicine.
Washington:				
King County Harborview Hospital	Seattle	3,655,415	305,415	This fractional project is a 57-bed addition with service facilities to this 450-bed general hospital which serves as a teaching facility for medical students from the University of Washington School of Medicine.
King County Hospital (unit No. 2)	do	400,000	156,800	This project consists of the remodeling of existing hospital building by conversion from Children's Orthopedic Hospital to a chronic disease facility providing 226 beds. The subject hospital serves as a teaching facility for medical students from the University of Washington School of Medicine.
Puerto Rico:				
Bayamon District Hospital	Bayamon	21,033	12,656	This project provides for the addition of 2 storerooms for use of the subject hospital which serves as a teaching facility for medical students from the University of Puerto Rico School of Medicine.
Bayamon Hospital	do	714,775	476,516	This project is an addition and alteration to the subject hospital providing new service facilities and 64 acceptable beds as compared with 56 unacceptable beds prior to alteration. This hospital serves as a teaching facility for medical students from the University of Puerto Rico School of Medicine.
Presbyterian Hospital	San Juan	1,850,000	900,000	This project is an addition and alteration to the subject hospital and provides 43 additional beds and central service facilities for the subject hospital which serves as a teaching facility for medical students from the University of Puerto Rico School of Medicine.

Other teaching hospitals approved for interns and residents

Location	Name	Type of construction	Estimated total cost	Approved Federal share
Alabama:				
Birmingham	Carraway Methodist Nurses Home	Addition	$554,443	$184,815
Do	St. Vincents	do	1,559,473	483,206
Tuscaloosa	Druid City	New	3,221,906	1,952,817
Arizona:				
Phoenix	Maricopa County	Addition	669,077	157,339
Do	Good Samaritan	Addition and remodel.	1,307,560	494,610
Do	Memorial Hospital, ASF	Addition	26,374	12,000
Do	Good Samaritan Nurses Home	do	102,739	51,369
Do	St. Josephs	New	5,828,089	1,500,000
Do	Good Samaritan	Addition and remodel.	850,000	425,000
Do	do	Addition	250,000	125,000
Tucson	St. Marys Hospital and Sanatorium	Addition and remodel.	1,600,272	533,424
Arkansas:				
Little Rock	State Nerve and Mental, ASF	New	148,726	49,575
Do	do	do	212,717	70,906
Do	State Mental Tuberculosis Unit	Addition	776,766	258,922
Do	St. Vincent Infirmary	New	6,514,414	3,776,666
California:				
Bakersfield	Kern General	Addition	3,406,852	1,003,426
Arlington	Riverside County General	do	2,720,751	219,763
Berkeley	Herrick Memorial	do	506,810	150,191
Burbank	St. Josephs Hospital	do	1,956,149	550,922
Duarte	City of Hope	Addition and remodel.	902,149	182,406
Do	City of Hope Diagnostic and Treatment Center.	do	452,106	97,746
Fresno	Fresno County General Diagnostic and Treatment Center.	New	513,323	151,657
Do	Fresno County General	do	4,258,836	945,308
Los Angeles	Queen of Angels Hospital	Addition	917,454	305,818
Salinas	Monterey County Hospital	Addition and remodel.	866,979	234,282
Do	do	do	167,026	37,967
San Jose	O'Connor Hospital	New	5,559,965	1,600,000
Do	Santa Clara County Hospital	Addition	4,166,167	579,321
San Mateo	San Mateo Community	do	3,010,461	84,758
Santa Rosa	Sonoma County Hospital	do	924,515	245,532
Colorado:				
Colorado Springs	Glockner Penrose Diagnostic and Treatment Center.	do	159,610	69,164
Greeley	Weld County Public	New	2,976,271	900,000
Connecticut:				
Bridgeport	Bridgeport Hospital, ASF	Addition and remodel.	109,014	36,338
Do	Bridgeport Hospital	Addition	3,902,094	200,000
Hartford	Hartford Hospital, ASF	do	561,406	187,136
Do	Hartford Hospital Diagnostic and Treatment Center.	Remodel	45,404	15,135
Do	Mount Sinai Diagnostic and Treatment Center.	Addition and remodel.	699,560	75,000
Manchester	Manchester Memorial	do	974,959	300,000
Meriden	Meriden Hospital	do	1,300,000	300,000
Middletown	Middlesex Hospital	do	1,765,068	300,000
New Britain	New Britain General	Addition	533,000	133,333
New Haven	Hospital of St. Raphael DTC	do	289,559	83,333
Norwalk	Norwalk Hospital	Addition and remodel.	1,827,979	200,000
Do	Norwalk Hospital Nurses Home and Training School.	Addition	823,600	200,000
Norwich	William W. Backus	Addition and remodel.	156,757	52,252
Do	do	do	875,000	200,000
Stamford	Stamford Hospital	do	2,000,000	200,000
Waterbury	St. Marys	do	1,085,750	200,000
Do	Waterbury Hospital ASF	Addition	1,989,990	200,000
Do	Waterbury Nurses Training School	do	624,825	176,428
Delaware: Farnhurst	Delaware State Hospital	Addition and remodel.	719,830	270,656
Florida:				
Jacksonville	St. Lukes, ASF	do	191,763	63,921
Do	St. Lukes	do	333,783	150,202
Do	St. Vincents	do	1,651,050	187,500
Do	St. Lukes	do	293,413	130,256
Do	Hope Haven	do	240,590	120,295
Orlando	Orange Memorial	do	786,724	276,007

Other teaching hospitals approved for interns and residents—Continued

Location	Name	Type of construction	Estimated total cost	Approved Federal share
Florida—Continued				
Pensacola	Babtist Memorial	New	$1,555,300	$855,464
St. Petersburg	American Legion Crippled Children's	do	777,275	258,497
Do	American Legion Hospital	Addition and remodel	70,011	31,695
Tampa	Tampa Municipal	do	4,618,788	326,400
Do	do	Addition	332,403	162,500
Georgia:				
Athens	Athens General	Addition and remodel.	552,900	184,300
Do	do	do	854,806	277,914
Columbus	Columbus City Hospital, NH	Replacement	207,451	93,353
Do	Columbus City Hospital	Addition and remodel.	2,140,140	650,000
Macon	Macon City Nurses Training School	Addition	559,634	186,545
Do	Macon City ASF	Addition and remodel.	154,593	51,531
Do	Macon City	do	6,169,036	1,666,666
Do	do	Addition	57,834	19,278
Warm Springs	Georgia Warm Springs, rehabilitation facility.	Addition and remodel.	446,928	223,464
Illinois:				
Chicago	Resurrection	New	3,990,000	1,435,600
Do	Provident Hospital Training School	Addition and remodel.	527,000	204,478
Do	Swedish Covenant	Addition	485,727	155,200
Do	Illinois Masonic	do	1,008,302	160,102
Decatur	Decatur Macon County Hospital	do	1,085,146	42,747
Do	do	Remodel	116,461	44,030
Elmhurst	Memorial Hospital of Du Page County.	Addition	1,927,000	110,000
Peoria	St. Francis Forest Park, EQ	do	1,166,524	71,401
Do	The Methodist	New	1,660,145	407,400
Springfield	Memorial Hospital	Addition and remodel.	2,650,000	525,000
Indiana:				
Evansville	Protestant Deaconess	Addition	695,031	347,210
Do	St. Marys	New	7,273,474	2,204,730
Fort Wayne	Lutheran Hospital Nurses Home	Replacement	815,321	164,599
Do	Methodist Hospital	New	4,285,574	1,508,366
Do	Lutheran Hospital	Addition	803,857	38,000
Gary	Methodist Hospital	do	484,326	241,874
Hammond	St. Margarets, ASF	do	336,493	160,935
Knox	Starke County	New	397,891	189,986
Muncie	Ball Memorial	Addition and remodel.	842,453	124,000
South Bend	St. Josephs Hospital	do	334,939	111,646
Do	do	do	3,429,528	519,736
Do	Memorial Hospital	do	4,108,850	632,416
Iowa:				
Cedar Rapids	St. Lukes Methodist	Remodel and replace.	2,586,146	817,600
Davenport	Mercy Hospital	Addition and remodel.	2,683,744	845,407
Des Moines	Iowa Methodist	Addition	1,285,400	428,467
Do	Mercy Hospital	Addition and remodel.	2,751,000	917,000
Do	Iowa Methodist	do	1,864,502	96,905
Kansas:				
Kansas City	Providence Hospital	do	1,268,839	181,711
Do	St. Margarets, EQ	New	3,251,759	73,572
Do	Bethany Hospital	Addition and remodel.	1,200,000	480,000
Do	do	Addition	250,000	100,000
Do	Bethany Hospital Diagnostic and Treatment Center.	do	250,000	100,000
Topeka	Menninger Foundation	do	1,687,995	614,709
Kentucky:				
Covington	St. Elizabeths	Addition and remodel.	1,470,280	490,094
Lexington	Good Samaritan Hospital	do	900,000	500,000
Louisville	John N. Norton Memorial Infirmary	do	901,146	300,381
Do	St. Anthonys Nursing School	Addition	753,000	376,500
Do	Childrens Hospital	Addition and remodel.	1,656,794	1,104,529
Louisiana:				
Baton Rouge	Baton Rouge General	New	2,134,623	689,875
Lafayette	Lafayette Charity Tuberculosis	Addition	1,065,265	211,849
Lake Charles	St. Patricks, EQ	do	70,463	23,487

Other teaching hospitals approved for interns and residents—Continued

Location	Name	Type of construction	Estimated total cost	Approved Federal share
Louisiana—Continued				
New Orleans	DePaul Sanatorium	New	$1,256,419	$418,806
Do	Alton Ochsner Medical Foundation	do	5,432,568	1,325,000
Shreveport	T. E. Schumpert Memorial Sanitorium.	Remodel and replace.	6,207,260	671,250
Do	Confederate Memorial Medical Center.	New	8,450,681	533,155
Do	Confederate Memorial Nurses School	do	1,417,412	876,921
Maine:				
Lewiston	Central Maine General	Addition and remodel.	678,659	226,220
Portland	Maine Medical Center Diagnostic and Treatment Center.	Addition	2,824,448	146,372
Maryland:				
Baltimore	Franklin Square, ASF	do	145,668	48,556
Do	Provident Hospital	do	209,514	52,074
Do	South Baltimore General, EQ	do	331,542	9,395
Do	Maryland General	do	2,176,283	475,085
Bethesda	Suburban Hospital	Addition and remodel.	1,487,334	479,112
Hagerstown	Washington County	do	1,836,762	435,159
Massachusetts:				
Beverly	Beverly Hospital Diagnostic and Treatment Center, EQ.	do	2,265,584	34,234
Boston	New England Deaconess	do	3,574,036	409,018
Do	Boston Eye and Ear Infirmary	do	818,374	272,791
Do	Carney Hospital, EQ	New	8,194,238	250,000
Do	Boston Lying In, ASF	Addition and remodel.	574,144	101,640
Do	do	Remodel	78,788	32,303
Brockton	Brockton Hospital	Addition and remodel.	989,042	425,288
Fall River	St. Annes	do	393,813	166,975
Do	The Union Hospital	do	664,680	250,000
Fitchburg	Burbank Hospital	Addition	2,180,421	250,000
Holyoke	Holyoke Hospital	Addition and remodel.	1,641,717	400,160
Lawrence	Lawrence General	do	577,179	116,093
Do	Lawrence General Diagnostic and Treatment Center.	do	334,769	133,907
Lowell	St. Josephs Hospital	Addition	995,665	250,000
Do	Lowell General	do	1,597,119	250,000
Lynn	Lynn Hospital	Addition and remodel.	1,158,289	250,000
Malden	Malden Hospital	Addition	790,920	250,000
New Bedford	St. Lukes	Addition and remodel.	2,457,741	500,000
Salem	Salem Hospital	Addition and replace.	876,430	250,000
Worcester	St. Vincent, EQ	New	7,832,200	250,000
Michigan:				
Dearborn	Oakwood Hospital	do	5,420,000	1,442,300
Detroit	Childrens Hospital Diagnostic and Treatment Center.	Addition	310,000	100,000
Do	Rehabilitation Institute of Detroit	do	1,280,191	153,587
Do	do	do	1,638,809	205,578
Flint	Hurley Hospital	Addition and remodel.	3,698,760	251,408
Do	McLaren General	New	2,741,403	902,801
Highland Park	Highland Park General Diagnostic and Treatment Center.	Addition	130,613	52,245
Kalamazoo	Borgess Hospital	Addition and remodel.	1,853,306	115,862
Do	Kalamazoo State	Addition	576,076	256,984
Do	Bronson Methodist Nurses Home	do	1,343,396	330,093
Muskegon	Mercy Hospital	do	1,930,101	727,141
Saginaw	St. Lukes	New	2,107,278	702,426
Do	St. Lukes Hospital Nurses Home	Addition and remodel.	701,400	107,238
Traverse City	James Decker Munson	do	1,477,552	649,550
Minnesota:				
Duluth	St. Lukes Hospital, EQ	do	2,429,058	13,076
Do	St. Mary's Hospital	Addition	1,149,496	510,680
Minneapolis	Fairview Hospital	do	494,172	92,500
Do	do	do	710,803	200,000
St. Paul	Charles T. Miller	Addition and remodel.	545,318	243,444
Mississippi:				
Sanatorium	Tuberculosis Infirmary for Negroes	do	1,753,115	584,372
Vicksburg	Mercy Hospital, Street Memorial	New	3,177,155	1,046,670

Other teaching hospitals approved for interns and residents—Continued

Location	Name	Type of construction	Estimated total cost	Approved Federal share
Missouri:				
Kansas City	St. Lukes	Addition and remodel.	$2,833,086	$1,158,291
Do	Trinity Lutheran Hospital	do	924,645	163,503
St. Louis	DePaul Hospital	do	2,771,183	1,382,768
Do	Lutheran Hospital	Addition	3,832,548	574,954
Do	Evangelical Deaconess	Addition and remodel.	2,162,158	794,194
Do	The Jewish Hospital	Addition	280,233	131,640
Do	The Jewish Hospital, rehabilitation	do	209,432	95,000
Nebraska:				
Omaha	Lutheran Hospital	Addition and remodel.	193,506	10,000
Do	Lutheran Hospital, rehabilitation	do	168,994	50,000
Do	Lutheran Hospital, Diagnostic and Treatment Center.	do	62,500	25,000
New Jersey:				
Atlantic City	Atlantic City Hospital	do	2,093,952	762,840
Camden	Our Lady of Lourdes, EQ	New	4,478,416	159,037
Cedar Grove	Overbrook Hospital	Addition	1,504,772	350,000
Elizabeth	General and Dispensary	do	913,978	231,059
Flemington	Hunterdon Medical Center	New	2,513,046	727,040
Greystone Park	State Mental	Addition	421,740	127,673
Hackensack	Hackensack Hospital	do	2,967,453	690,292
Long Branch	Monmouth Memorial	do	1,458,722	450,000
Morristown	Memorial Hospital	New	2,680,199	815,939
Mount Holly	Burlington County	Addition	724,954	246,799
Neptune	Fitkin Memorial	do	1,173,756	373,277
Newark	St. Michaels Hospital, Rehabilitation	Addition and remodel.	313,550	125,420
Do	The Presbyterian Diagnostic and Treatment Center.	Addition	62,850	25,140
Paramus	Bergen Pines County	New	4,581,897	563,330
Do	Mental Health Diagnostic and Treatment Center.	do	333,000	119,880
Paterson	St. Josephs	Replacement	1,305,520	515,425
Perth Amboy	General Hospital	Addition and remodel.	441,602	176,641
Do	do	do	384,594	125,002
Plainfield	Muhlenburg Hospital	do	2,446,060	501,994
Summit	Overlook Hospital	do	2,459,442	675,000
Trenton	St. Francis Hospital	Addition	4,045,389	1,320,001
New York:				
Albany	Memorial Hospital	New	3,893,821	1,100,000
Alexandria Bay	Edward John Noble	do	430,060	143,353
Bronx	Lincoln Hospital, EQ	Remodel	38,895	12,965
Brooklyn	Wyckoff Heights	Additional	1,655,229	551,743
Buffalo	The Children's Hospital	Addition and remodel.	4,613,543	506,917
Far Rockaway	St. Josephs	do	1,905,133	557,700
Glencove	North Country Community Nurses School.	Addition	735,905	132,675
Ithaca	Tompkins County Memorial	Addition and remodel.	945,000	281,667
Jamaica	Queens General, EQ	Remodel	26,915	8,972
Do	Jamaica Hospital	Addition	1,780,647	593,549
Do	Queens General	do	5,783,751	1,318,963
Do	Queens General, ASF	Addition and remodel.	291,720	97,240
Johnson City	Charles S. Wilson, EQ	Addition	47,062	15,687
Kingston	Benedictine Hospital	do	1,817,070	605,690
Do	Ulster County Tumor Clinic	New	405,866	135,289
Do	Kingston Hospital, ASF	Addition	1,109,632	337,760
Manhasset	North Shore Hospital	New	3,819,963	442,500
Mineola	Nassau Hospital	Addition	1,447,873	348,000
New York	Harlem Hospital, EQ	Remodel	30,823	10,274
Poughkeepsie	St. Francis Hospital	Addition	2,311,368	535,179
Do	Vassar Brothers	Addition and remodel.	516,264	127,761
Syracuse	St. Josephs	Addition	1,906,559	453,639
Troy	St. Marys	do	842,922	153,393
North Carolina:				
Asheville	Memorial Mission	Addition and remodel.	2,871,181	1,223,806
Do	Memorial Mission Nurses Home	Replacement	389,209	168,962
Charlotte	Charlotte Memorial	Addition and remodel.	813,579	212,520
Do	Mercy Hospital, ASF	Addition	865,137	303,600
Greensboro	Moses H. Cone Memorial	New	5,277,023	462,000
McCain	North Carolina Sanatorium, ASF	Addition and remodel.	107,166	35,722
Raleigh	St. Agnes, ASF	Replacement	86,356	36,924

Other teaching hospitals approved for interns and residents—Continued

Location	Name	Type of construction	Estimated total cost	Approved Federal share
North Dakota: Minot	Trinity Hospital	Addition and remodel.	$1,602,070	$224,076
Ohio:				
Akron	City Hospital of Akron	do	1,631,864	151,648
Canton	Timken Mercy, EQ	Addition	470,000	23,333
Cleveland	Fairview Park Hospital	New	4,542,469	1,245,532
Dayton	St. Elizabeths Hospital	Addition and remodel.	4,105,254	1,003,208
Do	Good Samaritan	do	2,034,678	512,987
East Toledo	St. Charles Hospital	New	5,271,449	1,136,317
Elyria	Elyria Memorial	Addition and remodel.	1,941,690	551,703
Euclid	Euclid Glenville	New	3,319,676	1,050,725
Garfield Heights	Marymount Hospital, EQ	do	101,497	33,832
Springfield	Mercycrest Hospital, EQ	do	249,570	83,190
Steubenville	Ohio Valley Hospital	Addition and remodel.	850,000	266,667
Toledo	St. Vincents Hospital, EQ	Addition	487,888	162,629
Do	Flower Hospital, Diagnostic and Treatment Center.	Addition and remodel.	763,729	95,784
Youngstown	Youngstown Hospital	Addition	3,028,061	982,688
Do	St. Elizabeths Hospital	do	4,856,050	810,000
Oklahoma:				
Norman	Central State Hospital	do	490,884	162,568
Do	do	Remodel	372,706	124,235
Do	Central State Hospital, ASF	Addition and remodel.	1,185,421	392,371
Do	Central State Hospital	Addition	665,902	366,917
Do	do	do	360,511	187,794
Do	do	do	673,404	354,105
Oklahoma City	Mercy Hospital Nurses Home	Replacement	360,818	120,273
Do	Mercy Hospital	Addition and remodel.	857,718	428,859
Tulsa	Hillcrest Memorial Nurses Home	Addition	272,192	90,731
Do	Hillcrest Memorial	Addition and remodel.	2,084,339	1,160,681
Do	St. Johns Hospital Diagnostic and Treatment Center.	Addition	260,045	130,022
Oregon:				
Eugene	Sacred Heart General	do	1,500,000	500,000
Portland	Emanuel Hospital	do	2,166,173	418,884
Do	Good Samaritan	Addition and remodel.	2,242,400	729,000
Do	St. Vincents Hospital	do	1,235,514	307,553
Salem	Oregon State Hospital	Addition	779,410	259,803
Pennsylvania:				
Abington	Abington Memorial Hospital	Addition and remodel.	2,347,152	878,434
Altoona	Altoona Hospital, ASF	Replacement	782,719	260,907
Do	Altoona Hospital	Addition	1,444,179	548,651
Bethlehem	St. Lukes Hospital	Addition and remodel.	865,157	278,708
Do	St. Lukes Hospital, ASF	do	801,447	102,196
Do	St. Lukes Hospital	do	2,870,477	800,000
Braddock	Braddock General Nurses School	do	586,000	233,980
Bradford	Bradford Hospital	Addition and replacement	1,893,114	631,038
Bryn Mawr	Bryn Mawr Nurses Home	Addition	901,328	360,531
Danville	George F. Geisinger Memorial	do	1,492,926	497,642
Easton	Easton Hospital	Addition and remodel.	2,060,381	824,152
Do	Easton Hospital Nurses Home	Addition	388,501	155,400
Greensburg	Westmoreland Hospital	Addition and remodel.	2,322,601	928,947
Harrisburg	Harrisburg Polyclinic	do	3,275,986	1,217,234
Johnstown	Conemaugh Valley, ASF	do	2,592,905	308,941
Lancaster	Lancaster General	do	2,720,229	906,743
Do	St. Josephs Hospital	New	3,543,046	1,412,191
Do	do	Addition	658,272	219,424
McKeesport	McKeesport Hospital	do	1,888,622	755,449
Do	do	do	4,055,811	1,072,322
Norristown	Montgomery Hospital, ASF	Addition and replacement.	1,018,096	403,972
Philadelphia	Frankford Hospital	Addition and remodel.	1,216,822	466,475
Do	Wills Eye Hospital, ASF	do	30,026	12,011
Do	St. Christophers Diagnostic and Treatment Center.	New	381,050	127,017

Other teaching hospitals approved for interns and residents—Continued

Location	Name	Type of construction	Estimated total cost	Approved Federal share
Pennsylvania—Con.				
Reading	St. Josephs Nurses Home and Nurses School.	Addition	$958,927	$383,570
Do	The Reading Hospital	do	978,664	239,370
Do	The Reading Hospital, ASF	do	1,224,878	272,622
Uniontown	Uniontown Hospital	Addition and remodel.	1,242,624	479,067
Washington	The Washington Hospital	do	2,802,121	1,045,038
Williamsport	Williamsport Hospital	do	1,409,624	452,776
Do	do	do	836,925	334,770
Philadelphia	Chestnut Hill	Addition	820,114	273,180
Rhode Island:				
Howard	State Rehabilitation Center	New	1,891,000	72,600
Newport	Newport Hospital, EQ	Addition	120,714	16,738
Do	Newport Hospital, ASF	do	38,400	15,360
Pawtucket	The Memorial Hospital	Addition and remodel.	545,806	170,238
Do	do	do	504,418	201,767
Providence	Miriam Hospital	New	1,715,358	670,143
Do	Roger Williams General	Addition	975,937	390,374
Do	St. Josephs, EQ	Addition and remodel.	687,111	10,000
Do	Rhode Island Hospital, EQ	Addition	8,079,000	240,000
Do	Providence Lying In	Addition and remodel.	1,854,211	239,360
Do	Providence Lying In Diagnostic and Treatment Center.	do	262,468	100,000
Do	Rhode Island Hospital	Addition	375,000	150,000
South Carolina:				
Greenville	Greenville General, ASF	do	342,703	171,352
Do	Greenville General	do	4,174,636	1,828,011
Spartanburg	Spartanburg Hospital	Addition and remodel.	1,374,650	458,217
Do	Spartanburg General, ASF	do	124,941	62,470
Do	Spartanburg General Diagnostic and Treatment Center.	Addition	66,000	33,000
Tennessee:				
Chattanooga	Baroness Erlanger Hospital	do	1,158,920	600,038
Do	do	do	801,376	410,171
Kingsport	Holston Valley Community	do	2,119,494	899,002
Knoxville	St. Marys Memorial	Addition and remodel.	609,783	317,087
Do	St. Marys Memorial Diagnostic and Treatment Center.	Addition	237,862	63,446
Memphis	West Tennessee Tuberculosis, EQ	New	285,048	95,016
Do	LeBonheur Childrens	do	2,250,298	1,104,721
Texas:				
Corpus Christi	Corpus Christi Memorial	Addition and remodel.	1,509,524	751,639
El Paso	Hotel Dieu Sisters	Addition and replacement	3,600,100	1,525,000
Do	El Paso General	Addition	235,164	116,978
Fort Worth	All Saints Hospital	Remodel and replacement.	2,426,840	1,128,900
Gonzales	Warm Springs Childrens	Addition and remodel.	593,019	287,060
San Antonio	Santa Rosa Hospital	do	3,086,271	1,439,269
Waco	Providence Hospital	Addition	1,438,952	393,206
Do	Providence Hospital, ASF	do	458,839	204,109
Wichita Falls	Wichita General	Addition and remodel.	1,933,506	920,000
Do	do	Addition	171,000	85,500
Do	Wichita General Diagnostic and Treatment Center.	do	79,000	39,500
Virginia:				
Arlington	Arlington Hospital	do	500,320	248,629
Do	do	Addition and remodel.	960,965	390,000
Danville	The Memorial Hospital	do	3,112,703	1,419,040
Lynchburg	Lynchburg Hospital	New	4,065,000	1,193,841
Norfolk	De Paul Hospital	Addition and remodel.	1,737,000	678,000
Do	Norfolk General	Addition	3,711,880	1,038,596
Do	Norfolk General Diagnostic and Treatment Center.	do	714,940	388,804
Do	Norfolk General	do	613,180	331,100
Richmond	Retreat for the Sick	do	211,325	69,835
Roanoke	Memorial and Crippled Children	Addition and remodel.	2,976,354	960,660

Other teaching hospitals approved for interns and residents—Continued

Location	Name	Type of construction	Estimated total cost	Approved Federal share
Virginia—Continued				
Suffolk	Louise Obici Memorial	New	$2,222,490	$773,027
Do	do	Addition	132,951	45,776
Winchester	Winchester Memorial	Addition and remodel.	4,037,881	1,056,000
Washington:				
Seattle	Childrens Orthopedic, EQ	New	5,405,366	64,000
Spokane	Sacred Heart, EQ	Addition and remodel.	4,295,556	157,070
Do	Deaconess Hospital	do	1,082,770	160,000
West Virginia:				
Charleston	Charleston Memorial	New	3,976,603	1,325,534
Do	Charleston Nurses Home and Training School.	Addition	418,567	255,326
Parkersburg	St. Josephs Hospital	do	1,262,707	770,075
Do	Camden Clark Memorial	Addition and replacement.	1,013,336	405,517
Philippi	Broaddus Hospital Association	New	1,574,315	960,332
Wheeling	Ohio Valley General	Addition and remodel.	5,033,726	1,261,972
Wisconsin:				
Eau Claire	Luther Hospital	do	812,067	268,382
LaCrosse	LaCrosse Lutheran	do	974,698	382,538
Madison	Madison General	Addition	2,642,248	482,716
Do	St. Marys Hospital	Remodel	375,000	150,000
Milwaukee	St. Lukes Hospital	Addition	2,713,794	1,042,159
Do	Columbia Hospital	Addition and remodel.	1,253,479	141,540
Do	St. Michael Hospital Diagnostic and Treatment Center.	New	463,086	100,000
Eau Claire	Luther Hospital Diagnostic and Treatment Center.	Addition	643,600	100,000

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139. Reply to staff inquiry received from Housing and Home Finance Agency (reproduced below).

HOUSING AND HOME FINANCE AGENCY,
OFFICE OF THE ADMINISTRATOR,
Washington 25, D. C., July 21, 1956.

KURT BORCHARDT, Esq.,
Legal Counsel, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington 25, D. C.

DEAR MR. BORCHARDT: This is in reply to your letter of August 14, in which you request assistance of this Agency in developing background material bearing on the subject of Federal aid to medical education.

The only topic about which the Housing and Home Finance Agency has any information relevant to your inquiry concerns item C (7) of the topical outline enclosed with your letter. The one Federal program administered by a constituent agency of the Housing Agency which has any material effect upon medical schools is the college housing program, administered by our Community Facilities Administration. Pursuant to title IV of the Housing Act of 1950, as amended, direct Federal loans at low interest rates may be made to assist institutions of higher learning in the development of housing and related service facilities where such assistance is not otherwise available on equally favorable terms.

Medical, dental, and nursing schools meeting the eligibility requirements of the law may receive Federal loans under this program. As

of July 31, 1956, nine such schools had approved loans or reservations of funds under the program, and one loan processed under the program was later financed with private funds. A table containing detailed information concerning these loans is enclosed. I am also enclosing a copy of title IV of the Housing Act of 1950, as amended, and an informational pamphlet designed to explain the program to applicants.

If I can be of further assistance, please let me know.

Sincerely yours,

ALBERT M. COLE,
Administrator.

Medical and nursing schools participating in the college housing program

Institution	Amount of Federal loan	Purpose of loan
Approved loans:		
Georgetown University	[1] $1,265,000	Dormitory, including dining facilities, for 294 women students and 13 faculty.
University of Mississippi	1,300,000	Dormitories to house 100 men and 100 women, respectively, and apartments for 100 married students.
Yeshiva University, College for Medicine.	1,500,000	Dormitory, including dining facilities, for 297 students and 8 faculty.
New York University-Bellevue Medical Center.	2,310,000	Dormitory, including dining facilities, for 238 men and 2 faculty.
The Medical College of South Carolina.	1,000,000	Dormitory, including dining facilities, for 255 men students.
Preliminary reservation of funds:		
University of Arkansas, medical center.	1,705,000	Dormitories to house 200 men, 160 women, respectively, and apartments for 50 married students.
Indiana University Medical Center (2 loans).	1,210,000	Apartments for 100 married students.
	1,100,000	Dormitory for 263 men and dining facilities for 450 students.
College of Mount St. Joseph-on-the-Ohio.	[1] 800,000	Dormitory for 95 women students and nurses.
Medical College of Virginia	1,113,000	Dormitory to house 354 men and 1 housemother.
Approved loan later rescinded for private financing: University of Texas, medical branch.	2,512,000	Dormitories for 72 women medical students, 144 nurses, 216 residents and internes; an apartment building for 30 married students and internes and a combination cafeteria, lounge and faculty housing building to serve 432 residents, internes and students and house 38 faculty members.

[1] Nursing schools.

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140. Medical Education in the United States and Canada. Journal of the American Medical Association 161: 1658–1660, August 25, 1956. Graduate Medical Education in the United States. Journal of the American Medical Association 162: 320–390, September 22, 1956.

Reply to staff outline received from American Medical Association (reproduced below).

DURATION AND COST TO STUDENTS OF MEDICAL EDUCATION

Though only 3 medical schools require 4 years of college preparatory study, the majority of students entering medical school have had 4 years of college work (see table under sec. A (5)). Four years of medical school study is required to be eligible for the M. D. degree. Very close to 100 percent of medical school graduates spend a year serving an internship. Utilizing data in Weiskotten's study (H. G.

Weiskotten, M. E. Altenderfer: Trends in Medical Practice, Journal of Medical Education, Pt. 2, July 1956, attached as appendix E), it can be computed that approximately 80 percent of the class graduating from medical school in 1945, took additional training as residents and approximately 50 percent of this class had 3 or more years of such training.

Thus, for the class of 1945, the minimum formal education beyond high school was 8 years. The typical member of that class, however, spent 4 years in college, 4 years in medical school, 1 year as an intern and 3 years as a resident for a total 12 years of formal training beyond high school. There is no evidence to indicate that the time devoted to formal education for the typical medical student has decreased for subsequent classes.

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141. Undergraduate cost at public institutions—Hollis, Ernest V. Costs of Attending College. [In process of being printed by Office of Education.]

Medical school cost—Based on Association of American Medical Colleges. Admission Requirements of American Medical Colleges, 1957. Chicago, The Association, 1956. p. 12 (reproduced on p. 388).

Intern and resident stipends—Graduate Medical Education in the United States. Journal of the American Medical Association 162: 280, 320–387, September 22, 1956. (Interns average $145 per month, or $1,740 per year; residents average $176 per month, or $2,112 per year.) Earnings in the legal profession—Department of Commerce, Survey of Current Business, 36: 32, December 1956 ($5,280 average net earnings of lawyers aged 25 to 29 years).

Approved medical schools and schools of the basic sciences in the United States, 1955–56

State	No.	School	Ownership	Tuition		Requirement by years [1]	Total enrollment 1955–56
				Resident	Nonresident		
		APPROVED 4-YEAR MEDICAL SCHOOLS					
Alabama	1	Medical College of Alabama, Birmingham	Public	$451	$851	3	296
Arkansas	2	University of Arkansas School of Medicine, Little Rock	do	391		3	317
California	3	College of Medical Evangelists, Loma Linda; Los Angeles	Private	1,292	1,292	3	385
	4	University of Southern California School of Medicine, Los Angeles	do	950	950	3	271
	5	Stanford University School of Medicine, San Francisco	do	1,005	1,005	3	236
	6	University of California School of Medicine, San Francisco	Public	334	584	3	314
	7	University of California School of Medicine, Los Angeles	do	334	584	3	168
Colorado	8	University of Colorado School of Medicine, Denver	do	670	2,670	3	315
Connecticut	9	Yale University School of Medicine, New Haven	Private	900	900	3	316
District of Columbia	10	Georgetown University School of Medicine, Washington	do	960	960	[2]	441
	11	George Washington University School of Medicine, Washington	do	900	900	3	372
	12	Howard University College of Medicine, Washington	do	587	587	[3]	289
Florida	13	University of Miami School of Medicine, Coral Gables	do	720	720	3	198
Georgia	14	Emory University School of Medicine, Emory University	do	800	800	3	284
	15	Medical College of Georgia, Augusta	Public	435	690	3	352
Illinois	16	Chicago Medical School, Chicago	Private	664	664	[4]	283
	17	Northwestern University Medical School, Chicago	do	930	930	3	523
	18	Stritch School of Medicine of Loyola University, Chicago	do	800	800	3	325
	19	University of Chicago, The School of Medicine, Chicago	do	940	940	3	286
	20	University of Illinois College of Medicine, Chicago	Public	325	613	3	636
Indiana	21	Indiana University School of Medicine, Bloomington; Indianapolis	do	400	700	3	586
Iowa	22	State University of Iowa College of Medicine, Iowa City	do	152	307	3	441
Kansas	23	University of Kansas School of Medicine, Lawrence; Kansas City	do	475	925	[5]	428
Kentucky	24	University of Louisville School of Medicine, Louisville	Private	800	1,200	3	379
Louisiana	25	Louisiana State University School of Medicine, New Orleans	Public	120	520	3	426
	26	Tulane University of Louisiana School of Medicine, New Orleans	Private	900	900	3	511
Maryland	27	Johns Hopkins University School of Medicine, Baltimore	do	970	970	[6]	286
	28	University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore.	Public	735	885	3	375
Massachusetts	29	Boston University School of Medicine, Boston	Private	1,000	1,000	3	284
	30	Harvard Medical School, Boston	do	1,062	1,062	2	530
	31	Tufts University School of Medicine, Boston	do	1,015	1,015	3	443
Michigan	32	University of Michigan Medical School, Ann Arbor	Public	440	770	3	762
	33	Wayne State University College of Medicine, Detroit	do	543		3	281
Minnesota	34	University of Minnesota Medical School, Minneapolis	do	400	785	3	481
Missouri	35	St. Louis University School of Medicine, St. Louis	Private	905	905	3	479
	36	Washington University School of Medicine, St. Louis	do	906	906	3	359

See footnotes at end of table, p. 387.

Approved medical schools and schools of the basic sciences in the United States, 1955–56—Continued

State	No.	School	Ownership	Tuition		Requirement by years [1]	Total enrollment 1955–56
				Resident	Nonresident		
		APPROVED 4-YEAR MEDICAL SCHOOLS—continued					
Nebraska	37	Creighton University School of Medicine, Omaha	Private	812	812	3	297
	38	University of Nebraska College of Medicine, Omaha	Public	450	615	3	331
New York	39	Albany Medical College, Albany	Private	1,007	1,007	3	221
	40	University of Buffalo School of Medicine, Buffalo	do	985	985	4	296
	41	Columbia University College of Physicians and Surgeons, New York City	do	983	983	3	462
	42	Cornell University Medical College, New York City	do	1,000	1,000	[5]	338
	43	New York Medical College, Flower and Fifth Avenue Hospitals, New York City	do	936	936	3	476
	44	New York University College of Medicine, New York City	do	1,017	1,017	3	527
	45	State University of New York College of Medicine, New York City	Public	715	715	3	587
	46	State University of New York College of Medicine, Syracuse	do	715	715	3	286
	47	University of Rochester School of Medicine and Dentistry, Rochester	Private	900	900	3	273
North Carolina	48	Duke University School of Medicine, Durham	do	1,020	1,020	3	314
	49	Bowman Gray School of Medicine of Wake Forest College, Winston-Salem	do	750	750	3	204
	50	University of North Carolina School of Medicine, Chapel Hill	Public	670	1,270	3	249
Ohio	51	University of Cincinnati College of Medicine, Cincinnati	do	698	823	3	338
	52	Western Reserve University School of Medicine, Cleveland	Private	810	810	3	322
	53	Ohio State University College of Medicine, Columbus	Public	576		3	573
Oklahoma	54	University of Oklahoma School of Medicine, Oklahoma City	do	450	800	3	379
Oregon	55	University of Oregon Medical School, Portland	do	561	819	3	295
Pennsylvania	56	Hahnemann Medical College and Hospital of Philadelphia, Philadelphia	Private	847	847	3	399
	57	Jefferson Medical College of Philadelphia, Philadelphia	do	883	883	3	677
	58	Temple University School of Medicine, Philadelphia	do	850	850	3	488
	59	University of Pennsylvania School of Medicine, Philadelphia	do	970	970	3	500
	60	Woman's Medical College of Pennsylvania, Philadelphia	do	975	975	3	182
	61	University of Pittsburgh School of Medicine, Pittsburgh	do	815	815	3	363
South Carolina	62	Medical College of South Carolina, Charleston	Public	437	1,537	3	296
Tennessee	63	University of Tennessee College of Medicine, Memphis	do	450	675	3	781
	64	Meharry Medical College, Nashville	Private	744	744	3	259
	65	Vanderbilt University School of Medicine, Nashville	do	810	810	[2]	204
Texas	66	University of Texas Southwestern Medical School, Dallas	Public	110	360	3	394
	67	University of Texas Medical Branch, Galveston	do	92	342	3	614
	68	Baylor University College of Medicine, Houston	Private	797	797	3	342
Utah	69	University of Utah School of Medicine, Salt Lake City	Public	480	830	3	209
Vermont	70	University of Vermont College of Medicine, Burlington	do	554	1,004	4	180
Virginia	71	University of Virginia School of Medicine, Charlottesville	do	464	864	3	289
	72	Medical College of Virginia, Richmond	do	596	921	3	366
Washington	73	University of Washington School of Medicine, Seattle	do	300	495	3	288
Wisconsin	74	University of Wisconsin Medical School, Madison	do	340	660	3	325
	75	Marquete University School of Medicine, Milwaukee	Private	900	900	3	394

Puerto Rico	76	University of Puerto Rico School of Medicine, San Juan	Public	539	539	3	184
		Total					28,160
		APPROVED SCHOOLS OF BASIC MEDICAL SCIENCES					
Mississippi	1	University of Mississippi School of Medicine, Jackson	Public	600	810	3	134
Missouri	2	University of Missouri School of Medicine, Columbia	do	319		3	88
New Hampshire	3	Dartmouth Medical School, Hanover	Private	980	980	(2)	48
North Dakota	4	University of North Dakota School of Medicine, Grand Forks	Public	178	358	3	77
South Dakota	5	University of South Dakota School of Medical Sciences, Vermillion	do	260	470	3	72
West Virginia	6	West Virginia University School of Medicine, Morgantown	do	264	700	3	60
		Total					479
		Grand total (4-year schools and schools of basic medical sciences)					28,639
		SCHOOLS DEVELOPING NEW PROGRAMS					
		University of Mississippi School of Medicine, Jackson	Public	600	810	3	28
		University of Missouri School of Medicine, Columbia	do	319		3	25
		Albert Einstein College of Medicine, New York	Private	1,050	1,050	3	56
		Total					28,748

[1] Number of years of college required for admission to medical school.
[2] Degree.
[3] 72 semester hours.
[4] 4 years and degree.
[5] 3 years and degree.

Source: JAMA 161: 1640–1641, August 25, 1956.

84693—57——25

What Does It Cost To Attend Medical School?

The cost of attending medical school is not as high as is commonly believed. Table 13 shows the median expenses for major items during the freshman year in the typical private and the typical tax-supported medical school. There is considerable range within each of the categories in this table, however. For example, tuition and fees range from $580 to $1,250 for private schools, from $106 to $800 for residents in tax-supported schools, and from $358 to $2,655 for nonresidents in tax-supported schools.

Chapter II presents expense estimates for individual schools. In all cases it should be remembered that fees are subject to change and that living expenses vary considerably with the spending habits of the individual. There is evidence of a slight upward trend, particularly at private schools, for the items estimated in table 13, but students who are planning ahead for medical school 1 or 2 years hence can still consider these figures as rough budget goals.

TABLE 13.—*Estimates of median expenses of freshmen*

Item	Private schools	Tax supported schools	
		Resident	Nonresident
Tuition and fees	$925	$450	[1] $770
Room and board	800	700	700
Books and supplies	135	125	125
Microscope: [2]			
New	350	350	350
Used	200	200	200
Rental per year	15	15	15

[1] Based on 32 tax-supported schools citing a nonresident tuition fee. Only 1 private school cites a nonresident fee.

[2] Students should consult school entries for microscope information. In many cases used 'scopes must be approved, and the rental situation ranges from no charge to installment purchase. There are no rentals at 51 schools and in some cases there are restrictions.

Reply to staff outline received from American Medical Association (reproduced below).

The table below depicts the median expenses for major items during the first year in the typical private and publicly owned medical school. These data are based on estimates submitted by the administrative officers of the medical schools. It does not cover such items as laundry, travel, recreation, and the inevitable miscellaneous expenses.

Estimates of median expense for freshmen

Items	Private schools	Tax-supported schools	
		Resident	Nonresident
Tuition and fees	$900	$450	[1] $770
Room and board	800	700	700
Microscope (new)[2]	350	335	335
Books and supplies	128	125	125
Total	2,178	1,610	1,930

[1] Based on the 31 tax-supported schools that cite a nonresident tuition fee.

[2] Microscopes may be rented at 27 medical schools; the median rental fee is $21 per year. Also, many medical schools allow students to purchase a used microscope.

There is no significant change in these items during the 4 years in school, so that estimates of average expenses for the 4 years can be obtained by multiplying the totals in the table above by 4.

It is to be noted that estimates of cost given here, make no reference to costs of acquiring the required college education nor any attempt to define costs versus income during the internship and residency period. Perhaps a complete estimate should not only include these considerations but also estimates of potential income loss during the years of medical education beyond educational years of the average individual in the same age group.

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142. Association of American Medical Colleges, Admission Requirements of American Medical Colleges, 1956. Chicago, the Association, 1955, pp. 3–5, and Counts, S., and Stalnaker, J. M. The Cost of Attending Medical School. Journal of Medical Education 29: 20–25, February 1954.

Medical school students come from a variety of economic backgrounds.—It costs money to attend medical school, and the applicant is wise if he plans a clear way of financing his professional education. A student with a definite plan for financing his needs is apt to do better than a classmate who has to worry about raising the money for his tuition, fees, and lodging. With no financial worries, the student has more time to study, and his chances of remaining in school are usually better. But contrary to what is commonly believed, a number of students lacking adequate financial support struggle through a medical education by working during vacation periods (in some cases by stay-out of school and working for a year), by borrowing money, or by winning cash prizes or scholarships. With married students, the wives usually work and supply the needed financial support.

A study published by the committee on teaching institutes and special studies of the Association of American Medical Colleges showed that the typical student had $2,450 available during the year 1952–53; this was $100 over his reported expenditures. About 10 percent of the entire group of students reported a deficit; the median deficit was $150. Most students who had deficits described plans for correcting them such as working, obtaining a loan, or drawing on savings which had been set aside for later use (see table 1).

TABLE 1.—*Average amount of income of medical school students according to source*

	Amount of income	Percentage using source	Percentage using as largest source	Number using as only source [1]
Vacation earnings	$550	73	10	41
Current earnings of student	450	26	3	13
Current earnings of student's wife	2,500	22	18	14
Gift from parents	1,300	59	40	639
Loan from parents	1,000	19	9	72
Loan from school	450	4	0	0
Loan from other source	700	10	3	9
Savings (to be used this year only)	450	18	3	13
Independent income	550	8	2	39
Scholarship or fellowship	550	10	2	2
GI bill	1,150	12	4	7
Other	250	1	0	0

[1] 14 percent of the total group reporting had only 1 source of income.

Parents were the most important source of income for these students, with about three-fourths of them receiving a gift or loan averaging $1,000 per year. Parents, however, were the sole source of income for only 11 percent of these medical students. Seventy-nine percent of the students had no more than three sources from which they obtained money. Almost a third of the students were married, but only 1 couple out of 3 had children. About two-thirds of the students' wives were employed. The median amount of income from a working spouse was $2,500, which was the largest source of income reported by this group. One-fourth of all the students were employed in jobs outside the university or medical school.

Approximately one-third of this group indicated that they expected to be in debt when they graduated from medical school. The typical student in this deficit group anticipated a debt of $3,500, and at every school studied, one or more students predicted a debt of at least $10,000. The economic backgrounds of these students are indicated in table 2.

Financial aid for students is available at many medical schools.—Most medical schools do not want their students to do part-time work unless it is essential, but 72 of the 85 medical schools permit freshmen to work, and 78 schools allow upper-classmen to hold jobs.

TABLE 2.—*Occupations of the fathers of medical students*

Status of father:	*Percentage of groups*
Physician	10
Other professional work	16
Executive and managerial positions	25
Lower level of business or laborer	33
Deceased, retired, unemployed, or not indicated	16
Total	100

Financial aid in the form of cash prizes, scholarships, and loans is available at most schools. Forty-three schools offer scholarships and 59 offer loans to freshmen. It is generally easier for upperclassmen than freshmen to obtain financial aid, since advanced students have proved their ability to do good work. Twenty schools offer cash prizes, 72 offer scholarships, and 81 offer loans to upperlcassmen.

It is estimated that about 600 students (8 percent) in the freshman class of 1955–56 will receive financial aid in the form of cash prizes, scholarships, or loans; but in the main the amount of individual award is small. Schools vary considerably in the amount of financial support they can offer their students. Puerto Rico and the College of Physicians and Surgeons of Columbia are unusual: Puerto Rico reports that about one-half and Columbia that about one-fifth of all students receive scholarship aid. State and county scholarships are available for students in some tax-supported schools. Many schools have not stated the exact number of scholarships they award, the number varying according to funds available and the need of the applicants. The applicant can obtain information on scholarships by writing directly to the medical school. Medical schools are understandably proud of their good students and do everything that is possible to help them through school. Since competition for "free money" is always great, however, no student should depend upon it until he has some assurance of receiving such an award.

Despite the financial aid and the possibilities for outside employment, it is best that the student have sufficient funds to carry him through the first year or two of his education. Once he has demonstrated an ability to do satisfactory work, he may be able to borrow money to help finance the final years of his education. In this way, he can arrange his schedule to permit a maximum amount of time for study.

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143. Reply to staff outline received from American Medical Association (reproduced below).

In 17 States, there exist scholarship and/or loan programs, largely sponsored by the State medical societies to stimulate careers in general practice in rural areas. These programs are summarized in the brochure entitled "Medical Scholarship and Loan Fund Programs."

The State governments of Mississippi, New York, and Vermont offer scholarships for professional study, including medicine. The States of Arkansas, Georgia, Louisiana, and Tennessee offer scholarships to Negro residents for higher education in those fields, including medicine, when such study opportunities are not available within the State.

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144. Reply to staff outline received from Mississippi State Education Board and Fifth Biennial Report of the State Medical Education Board of the State of Mississippi, July 1, 1953–June 30, 1955. See also preceding biennial reports

[Fifth Biennial Report of the State Medical Education Board of the State of Mississippi]

MISSISSIPPI DOLLARS HAVE MADE MISSISSIPPI DOCTORS

A total of 341 men and women have completed the fourth year of medical study under the State medical education scholarship program. Six of them, while still practicing in rural areas of Mississippi, have completed 5 years of general practice in such areas; thus have settled honorably and completely their contract obligations. A seventh will complete his full obligation on July 22.

One hundred and ninety-one others are in general practice and are still paying in medical service toward liquidation of their scholarship loans. Four have been lost by death after completion of medical study, 3 of the 4 having been in practice and the fourth ready for practice. Thirty-seven are in military service and will enter practice upon completion of military assignments. Fifty-five others are in internship or residency. Twenty-one have paid in cash, are paying, or are due to pay the remaining three-fifths of their State loan, plus 4 percent interest thereon, after having received credit for the minimal required practice period of 2 years. Then, there are 26 who have broken their contracts: 6 by removal to other States to practice, 13 to enter specialized training, 4 to practice at unapproved locations in the State, 2 to take internship at an unaccredited hospital, and 1 for reasons undisclosed. Eighteen of those who broke their contracts with less than 2 years' practice have repaid in cash the principal of the loan, plus interest. Six are paying regularly, and two still owe the full amount.

MISSISSIPPI STATE MEDICAL EDUCATION BOARD,
Jackson, Miss., October 16, 1956.

Mr. KURT BORCHARDT,
Legal Counsel, Committee on Interstate and Foreign Commerce,
House Office Building, Washington, D. C.

DEAR MR. BORCHARDT: In response to your letter and request of October 9, addressed to Dr. D. S. Pankratz, dean of the School of Medicine, University of Mississippi, which letter was referred by Dr. Pankratz to me with the request that I reply thereto, the following items are being sent to you under separate cover:

House bill 431, Laws of 1946. (This bill has been amended several times in minor details to increase personnel and salaries.)
House bill 1005, Laws of 1956.
Biennial reports: First, second, third, fourth, and fifth.
The Mississippi State Medical Education Loan Fund, by D. S. Pankratz, M. D.
Mississippi's Medical Education Loan Program, by Julia C. McCoy.
Copy of contract agreement.

Pamphlets:

Mississippi's State Medical Education Scholarship Program.
Medical March.
So You Want To Be A Doctor.

There are currently 154 students in medical schools receiving scholarships from the State medical education board. There are 56 in internship, 4 in general practice residency, and 56 in military service. Then, there are some 200 in active, approved practice.

I hope that from these compilations you may derive the desired information. It is a pleasure to be of service by providing this material.

Sincerely yours,

(Mrs.) JULIA C. MCCOY, C. P. S.,
Executive Secretary.

MISSISSIPPI LEGISLATURE — REGULAR SESSION 1946
By: Messrs. Sillers, Woolfolk, Patterson, Henley, Boren, Monaghan, Day, Thigpen (Bolivar) — To: Public Health and Quarantine

HOUSE BILL NO. 431

(Approved by Governor)

An act to create the state medical education board; to prescribe its duties; to provide for loans and scholarships to students desiring to study medicine, and for other purposes

SECTION 1. *Be it enacted by the legislature of the State of Mississippi,* That there is hereby created a board to be known as the state medical education board to consist of five members, three of whom shall be the dean of the medical school of the University of Mississippi, the executive officer of the state board of health, the president of the Mississippi State Medical Association, and two members to be appointed by the governor, who shall be qualified electors of the state of Mississippi. The dean of the medical school of the University of

Mississippi, the executive officer of the state board of health and the president of the Mississippi State Medical Association to serve on the board for terms for which they are appointed, elected or employed by their respective institutions, departments or organizations, and the two members appointed by the governor shall hold office for a term of four years beginning on the first day of April 1946, and every four years thereafter the governor shall appoint 2 members for a term of 4 years. Vacancies shall be filled by appointment of the governor for the unexpired term.

SEC. 2. The members of the board shall serve without pay but shall be allowed $7.50 per day expenses and travelling expenses of five cents (5¢) per mile for attending meetings of the board or in travelling elsewhere in the discharge of their duties requiring their absence from their respective places of abode, same to be paid upon the approval of the chairman or vice chairman of the board, out of any funds made available to said board.

SEC. 3. The board may employ a secretary who shall keep the records and minutes of the proceedings of the board and who shall also keep the books, records and accounts of the board, and whose compensation shall not exceed the sum of $3,600 per annum payable monthly. The secretary shall prepare and countersign all checks, vouchers and warrants drawn upon the funds of the board, and the same shall be signed by the chairman of the board. The secretary shall also be the treasurer of the board and shall keep and account for all the funds of the board, and shall execute and file with the board a surety bond in the sum of $10,000.00, payable to the state of Mississippi, and conditioned upon the faithful performance of his duties and that he shall properly account for all funds coming into his hands as such secretary, the premium on such bond to be paid out of the funds of the board. He shall devote his full time to the duties of his office.

The Board may employ one stenographer at such salary as may be fixed by the board, not to exceed $150.00 per month.

SEC. 4. The dean of the medical school of the state of Mississippi shall be the chairman of the board, and the board shall elect a vice chairman to serve in his absence or inability. The board shall maintain an office at the University of Mississippi, and shall meet at the said university or elsewhere at least once each month at such time as may be fixed by the board. Special meetings shall be held upon call of the chairman. Three members of the board shall constitute a quorum for the transaction of business, and the board shall keep full, complete and permanent minutes and records of all its proceedings and actions.

SEC. 5. It shall be the duty of the board to receive and pass upon, allow or disallow all applications for loans or scholarships made by students who are bona fide citizens and residents of the state of Mississippi and who desire to become physicians, and who are acceptable for enrollment in a qualified four year medical school. The purpose of such loans shall be to enable such applicants to obtain a standard four year medical education which will qualify them to become licensed, practicing physicians and surgeons within the state of Mississippi. It shall be the duty of the board to make a careful and full investigation of the ability, character and qualifications of each applicant and determine his fitness to become the recipient of

such loan or scholarship, and for that purpose the board may propound such examination to each applicant which it deems proper, and the said board may prescribe such rules and regulations as it deems necessary and proper to carry out the purpose and intention of this act. The investigation of the applicant shall include an investigation of the ability of the applicant, or of the parents of such applicant, to pay his own tuition at such a medical school and the board in granting such loans and scholarships shall give preference to qualified applicants who, or whose parents, are unable to pay the applicant's tuition at such a medical school.

The said board shall have authority to grant to each applicant deemed by the board to be qualified to receive the same, a loan or scholarship for the purpose of acquiring a medical education as herein provided for, upon such terms and conditions to be imposed by the board as provided for in this act.

SEC. 6. Applicants who are granted loans or scholarships by the board shall receive a loan not to exceed $5,000.00 to any one applicant to be paid in annual installments not exceeding $1,250.00 per annum, with which to defray his or her tuition and other expenses in any reputable, accepted and accredited four-year medical college or school in the United States, or a scholarship in such medical college or school for a term not exceeding four years, the cost of such scholarship not to exceed $5,000.00, same to be paid at such time and in such manner as may be determined by the board. The loans and scholarships herein provided shall not exceed the sums herein stated, but they may be prorated in such manner as to pay to the medical school to which any applicant is admitted such funds as are required by that school, and the balance to be paid direct to the applicant: all of which shall be under such terms and conditions as may be provided under rules and regulations of the board. The said loans or scholarships to be granted to each applicant shall be based upon the condition that the full amount thereof shall be repaid to the state of Mississippi in cash in full with 4 percent interest from the date of each payment by the state on such loan or scholarship, same to be payable annually, the first annual payment to be due on or before one year from the date the applicant completes his internship, or same may be repaid to the State of Mississippi in services to be rendered by the applicant by practicing his profession at some place within the state of Mississippi to be approved by the board. One-fifth of the loan or scholarship, together with the interest thereon, to be credited to the applicant for each year of practicing his profession, 75 percent to be placed within communities of 5,000 population or less, according to 1940 census, within the state of Mississippi as herein provided, but the annual interest on the unpaid installments shall be paid each year to the board by the applicant. After the second full year of practice within this state as herein provided, but not before, the said applicant shall be privileged to pay off the whole or any part of the balance of the loan or scholarship, as the case may be, together with accrued interest thereon, and upon such payment shall be relieved from further obligations under his contract for loan or scholarship.

Each applicant before being granted a loan or scholarship shall enter into a contract with the board, which shall be deemed a contract with the state of Mississippi, agreeing to the terms and conditions

upon which the loan or scholarship shall be granted to him, which said contract shall include such terms and provisions as will carry out the full purpose and intent of this act, and the form thereof shall be prepared and approved by the attorney general of this state, and shall be signed by the chairman of the board, countersigned by the secretary, and shall be signed by the applicant. For the purposes of this act the disabilities of minority of all applicants granted loans or scholarships hereunder shall be and the same are hereby removed and the said applicants are declared to be of full lawful age for the purpose of entering into the contract hereinabove provided for, and such contract so executed by any applicant is hereby declared to be a valid and binding contract the same as though the said applicant were of the full age of 21 years and upward. The board is hereby vested with full and complete authority and power to sue in its own name any applicant for any balance due the board on any such contract.

SEC. 7. It shall be the duty of the board to contact and make inquiry of such of the four-year medical colleges and schools as herein provided as it deems proper, and make such arrangements and enter into such contracts, within the limitation as to cost as herein provided, for the admission of students granted loans or scholarships by the board, such contracts to be approved by the attorney general of this state, and the money obligations of such contract so made by the board with any such colleges shall be paid for out of funds to be provided by law for such purposes, and all students granted loans or scholarships shall attend a medical school with which the board has entered into a contract, or any accredited four-year medical school or college in which said applicant may obtain admission, and which is approved by the Board: *Provided, however*, that the board may make loans to applicants for medical education, under the same terms and conditions herein provided, who desire to take their first two-year course at the medical school of University of Mississippi and the other two-year course at some four-year college.

SEC. 8. The board shall have authority to cancel any contract made between it and any applicant for loans or scholarships upon such cause deemed sufficient by the board. And the board shall have authority to cancel such contracts which it may lawfully cancel made with any of the colleges or schools as herein provided.

SEC. 9. All payments of funds for loans or scholarships hereunder shall be made by requisition of the board signed by the chairman and the secretary directed to the auditor of public accounts, who shall thereupon issue a warrant on the treasury of the State of Mississippi for the amount fixed in the requisition and payable to the person designated thereon, which said warrant upon presentation shall be paid by the treasurer out of any funds appropriated by the Legislature for the purposes provided for under this act.

SEC. 10. All funds made available to the board by act of the Legislature for the purpose of defraying expenses of the board and the salaries of its secretary and employees shall be paid over and received by the treasurer of this board and by him deposited in some solvent bank within the State of Mississippi and selected by the board, and such funds may be drawn and expended by check or warrant signed by the chairman and attested by the secretary.

SEC. 11. The board shall make a biennial report to the Legislature at each session thereof of its activities, loans or scholarships granted,

names of persons to whom granted and the institution attended by those receiving the same, the location of the applicants who have received their education and become licensed physicians and surgeons within this state as a result of the said loans and/or scholarships, and where they are practicing, and shall make a full report of all of its expenditures for salaries and expenses incurred hereunder.

SEC. 12. It is the purpose and intent of this act to immediately meet the emergency now existing from the shortage of doctors in the State of Mississippi by increasing the number of medical students from Mississippi in the various medical schools, and inducing a sufficient number of the graduates from medical schools to return to Mississippi and practice their profession, thus affording adequate medical care to the people of Mississippi.

SEC. 13. That this act shall take effect and be in force from and after its passage.

Mississippi Legislature — Regular Session 1956
By Messrs. Junkin & Stephens — To: Appropriations

HOUSE BILL NO. 1005

An act making an appropriation for the state medical education board of the State of Mississippi for the purpose of providing loans and/or scholarships for medical education of bonafide residents and citizens of Mississippi for the fiscal years 1956 and 1957

Be it enacted by the Legislature of the State of Mississippi:

SECTION 1. That the following sum, or so much thereof as may be necessary, is hereby appropriated for the fiscal years 1956 and 1957, beginning July 1, 1956, and ending June 30, 1958, out of any money in the state treasury not otherwise appropriated, to the state medical education board for the purpose of carrying out the provisions of the law and amendments thereto, creating the state medical education board, and to provide loans or scholarships for bona fide citizens and residents of Mississippi to secure for them medical education which will qualify them to become licensed and practicing physicians and surgeons within the State of Mississippi as provided by law, $467,291.98.

That three hundred seventy-five thousand dollars ($375,000.00) of the sum herein appropriated is hereby set aside to be expended only in making loans to complete the contracts heretofore made with persons to whom loans have heretofore been made.

That twenty-five thousand dollars ($25,000.00) of the sum herein appropriated is hereby set aside to be expended only in loans to persons who contract with the state medical education board to perform the period of service required by Section 9054–06 in the 1954 supplement to the Mississippi Code of 1942 in the field of public health work in the State of Mississippi.

All funds provided for in this act shall be accounted for in a detailed statement showing when, to whom and for what purpose applied, and a statement shall be submitted at the next regular session of the legislature within ten (10) days after the convening thereof.

SEC. 2. That the money herein appropriated shall be paid by the state treasurer out of any money in the state treasury not otherwise

appropriated, on warrant issued by the state auditor of public accounts; and the said auditor shall issue his warrant upon requisition signed by the proper person, officer or officers, in the manner, for the purposes and in the amounts as provided by law.

SEC. 3. That the sum of twenty-five thousand dollars ($25,000.00) of the amount hereinabove appropriated shall be paid over to the treasurer of the state medical education board to be expended by said board for salaries of officers and employees and for expenses incurred by the said board in the discharging of its duties; said sum to be paid by warrant issued on the treasury as herein provided for, upon requisition duly signed as herein provided for.

SEC. 4. That this act take effect and be in force from and after its passage.

MISSISSIPPI STATE MEDICAL EDUCATION BOARD

CONTRACT WITH STUDENT

This contract entered into by and between the State Medical Education Board, party of the first part, and _____, party of the second part, WITNESSETH:

That the party of the second part has filed application for a loan under the terms of House Bill No. 431, Laws of 1946, as amended, for the purpose of securing a medical education under the terms of the said bill, and party of the first part having made the necessary investigation of the financial need, ability, moral character, and educational qualifications of the said party of the second part to be granted a loan under the said bill and finding that the party of the second part is a resident and citizen of the State of Mississippi, residing at _____ in said State of Mississippi, and who desires to practice medicine in the State of Mississippi when he has completed his medical education under the conditions and terms of said House Bill, the State Medical Education Board hereby contracts to lend to the said party of the second part the sum of $_____, payable to said applicant in annual installments not to exceed $1,250.00 per annum, for the purpose of paying tuition and other expenses of the party of the second part in _____ Medical College. The Board shall have the right hereunder to pay the charges of said school from said annual payment or loan and to pay to the said party of the second part any difference between the full amount of the loan and the charges of said medical college, said amounts to be paid to the said party of the second part in monthly installments during said year.

This loan is granted under the conditions provided for in said House Bill No. 431 of the Laws of 1946, as amended, and the said Board reserves the right to limit the contract under conditions therein provided. The first installment of said loan shall be paid to the party of the second part on entering said college, which must be a class "A" four-year medical school approved by the party of the first part.

The party of the second part on his part agrees to enter the said medical college approved by the Board and to diligently pursue the course of study provided by said institution, and to observe all the rules and regulations of said school and of this Board. The said party of the second part, with the consent of the Board, may enter the

accredited medical college approved by said Board for a period of four years, or for the completion of the four-year course as required by such medical college. Party of the second part further agrees to demean himself and be of good behavior during said period.

Party of the second part further agrees that, as a part of the consideration of his loan, he will, on the completion of his education and on obtaining a license to practice medicine, locate in the State of Mississippi in an area or community of 5,000 population or less, according to the census of 1940, to be agreed upon by the parties herein or, if they do not agree on such community, the party of the first part shall determine the area or community and the party of the second part shall there remain for at least two years unless the parties shall mutually agree on another location. The party of the second part shall devote his time to his practice in such community.

The loan herein provided is made on the condition that the full amount thereof shall be repaid to the State of Mississippi in cash in full with four per cent (4%) interest from the date of each payment made to the applicant on such loan or scholarship, same to be payable annually. But the party of the second part shall have the right to repay the State said loan in installments of one-fifth thereof, with interest thereon, to be credited to the party of the second part, for each year he practices in such community or similar community approved by the Board, and that after two full years of such practice in such community, and not before, he may repay the full balance, with interest thereon to such date, and be relieved from this contract. The party of the second part shall pay the interest accruing at said rate annually on each of the installments, and one-fifth of the principal annually.

The parties hereto agree that the conditions provided in House Bill No. 431 of the Laws of 1946, as amended, are a part of this contract.

The party of the second part agrees that the party of the first part may terminate this contract for failure of the party of the second part to comply with the acts above mentioned in this contract and all conditions otherwise prescribed by said statute and for failure so to do said loan shall at once become due and payable.

IN WITNESS WHEREOF, we have affixed our signatures, this the _____ day of _____, 19__.

STATE MEDICAL EDUCATION BOARD.

By _____, Chairman

_____, Secretary

Party of the First Part

_____

Party of the Second Part

WITNESSES:

_____

(To Signature of Party of First Part)

_____

(To Signature of Party of Second Part)

Mississippi State Medical Education Board

CONTRACT WITH STUDENT

This contract entered into by and between the State Medical Education Board, hereinafter called the Board, and_____, a medical student applying for a loan, hereinafter called the student, WITNESSETH:

That the student has filed application for a loan under the terms of Chapter 436, Laws of 1946, as amended, for the purpose of securing a medical education under the terms of the said law, and the Board, having made the necessary investigation of the financial need, ability, moral character, and education qualifications of the said student to be granted a loan under the law and finding that the student is a resident and citizen of the State of Mississippi, residing at _____ in said State of Mississippi, and who desires to practice medicine in the State of Mississippi when he has completed his medical education under the conditions and terms of said law, the State Medical Education Board hereby contracts to lend to the said student the sum of $_____, payable to said applicant in annual installments not to exceed $1,250.00 per annum, for the purpose of paying tuition and other expenses of the student in _____ Medical College. The Board shall have the right and option hereunder to pay the charges of the school from said annual payment or loan and to pay to the student any difference between the full amount of the loan and the charges of the medical college. In this event, the Board may, in its sole discretion, pay the student any balance over and above school charges in monthly installments.

This loan is granted subject to all the conditions and the provisions of Chapter 436, Laws of 1946, as amended or as hereafter amended, and the Board reserves the right to limit the contract as provided by law. The first installment of the loan may be paid to the student on entering college, which must be a class "A" four-year medical school approved by the Board.

The student agrees to enter the medical college approved by the Board, to diligently pursue the course of study provided by the institution, and to observe all the rules and regulations of the school and of this Board. The student, with the consent of the Board, may enter the accredited medical college approved by the Board for a period of four (4) years, or for the completion of the four (4) year course as required by the medical college. The student further agrees to demean himself properly and with good comportment while in training under this contract.

The student further agrees that, as a part of the consideration of his loan, he will, on the completion of his education and obtaining a license to practice medicine, engage in public health work in Mississippi as assigned thereto and employed by the State Board of Health.

The loan herein provided is made on the condition that the full amount thereof shall be repaid to the State of Mississippi in cash in full with four percent (4%) interest from the date of each payment made to the applicant on such loan or scholarship, same to be payable annually. But the student shall have the right to repay the loan in installments of one-fifth thereof, with interest thereon, to be credited to the student for each year he engages in public health work in Missis-

sippi as assigned thereto and employed by the State Board of Health. After two full years of such practice in public health work, and not before, he may repay in cash the full balance, with interest thereon to such date and be relieved from this contract. The student shall pay the interest accruing at four percent (4%) annually on each of the installments and one-fifth of the principal annually.

The parties hereto agree that the conditions of Chapter 436 (House Bill 431), Laws of 1946, as amended or hereafter amended, are and shall be and become as much a part of this contract as if written herein.

The student agrees that the Board may terminate this contract for failure of the student to comply with the acts above mentioned in this contract and all conditions otherwise prescribed by said statute and for failure so to do said loan shall at once become due and payable.

IN WITNESS WHEREOF, we have affixed our signatures, this the ____ day of _____, 19____.

WITNESSES: STATE MEDICAL EDUCATION BOARD

By _____, Chairman

_____, Secretary

_____ (To Signature of Party of First Part)

Party of the First Part

_____, Student

_____ (To Signature of Student)

Party of the Second Part

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145. Reply to staff outline received from Medical College of Alabama (excerpts reproduced below).

The following totals indicate the number of medical students in each of these years who received a county scholarship and who signed agreements to return to their home county for a specified period of practice for these county scholarships:

Session:	*Number of students*
1953–54	46
1954–55	48
1955–56	48
1956–57	(1)

[1] Still indefinite.

* * * It is further provided that applicants for admission to the freshman class of the medical school who are bona fide residents of the State of Alabama and who meet the admission requirements of the school, including those approved by the Council on Medical Education and Hospitals of the American Medical Association and those of the Association of American Medical Colleges, shall have preferential consideration by the committee on admissions of the school. * * *

Before the board of revenue, court of county commissioners, or other governing body of any county approves a beneficiary of a scholarship to attend the School of Medicine of the University of Alabama, as prescribed by section 6 of Act No. 89, approved June 2, 1943 (General Acts of Alabama 1943, * * *), it shall obtain from the applicant for the scholarship an agreement whereby such applicant agrees that if he received the scholarship he will, upon graduation, practice his profession in the county for such period of time, not exceeding 5 years, as the board, court, or governing body may prescribe. The agreement shall be executed in triplicate, and 1 copy

thereof shall be returned to the beneficiary, 1 copy shall be filed with the records of the county governing body, and the other copy shall be forwarded to the dean of the school of medicine or dental college, as the case may require. * * *

Each recipient of a scholarship under a 1953 act shall enter into an agreement with the State board of health whereby he agrees to practice medicine for 5 years after the completion of his medical training in an area or locality in the State designated by the State board of health, or else to forfeit and become liable immediately to the State for the amount granted him under his scholarship. If a recipient of a scholarship practices medicine in an area designated by the State board of health for only a part of 5 years, he shall forfeit and be liable to the State only for such portion of the amount granted him as the State board of health shall determine.

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146. Reply to staff outline received from North Carolina Medical Care Commission.

The Legislature of North Carolina established the rural loan program in 1945 with an appropriation of $50,000 set up as a revolving fund to be administered by the Medical Care Commission for the purpose of aiding worthy medical students in financing their professional education who would agree to practice their profession in North Carolina rural areas or small towns of less than 2,500 population for a period of at least 4 years upon the completion of their training. The 1947 legislature amended the original program to include also students of dentistry, pharmacy, and nursing. The 1953 legislature authorized the expansion of the student loan program to include loans to students of medicine and nursing enrolled under the State hospitals loan program who would agree to serve for designated periods in the State-owned mental hospitals following the completion of their training.

To date 123 students have been approved for loans under the student loan program. Of these students, 13 are enrolled in the State-owned mental hospital program and the balance in the rural loan program. Under the rural loan program, 15 students, 13 of medicine and 2 of dentistry, have completed their training and are now practicing in rural areas. Nine other students are interning, six are in the service, three have completed their training and failed to live up to their rural program obligations, and the remainder, less 11 failures, are in school. Under the State hospitals loan program, one student is serving a residency in a State hospital in satisfaction of his loan obligation. Four students are interning and eight are presently in school. Approximately 6 years elapse from the time a loan is made to a medical student and the time he becomes licensed; consequently, the next few years will probably show a steady increase in the availability of physicians, dentists, pharmacists, and nurses for service in rural areas of the State and in the eligible State-owned mental hospitals.

Loans by the commission to students of medicine, dentistry, pharmacy, and nursing, who agree to practice at least 4 years in rural areas of the State

Type of student	Maximum loans					Interest	Repayment of principal and interest begins	Requirements		
	Total	1st year	2d year	3d year	4th year			Special conditions	Residency	Future practice
Medical	$4,800	$1,200	$1,200	$1,200	$1,200	Interest at 2 percent per annum begins when the loans are made. Paid in installments with principal.	6 months after completion of internship at 2 percent per month.	1 year of internship required; 2 years optional.	Must have been a resident of North Carolina prior to making application for a loan, for a period of 8 years.	Must agree to practice in a North Carolina town or village of less than 2,500 population, for at least 4 years immediately following the completion of approved program of training.
Dentistry	4,800	1,200	1,200	1,200	1,200	do	6 months after graduation or internship at 2 percent per month.	Option of 1 year's internship.	do	Do.
Pharmacy	3,200	800	800	800	800	do	6 months after graduation at 2 percent per month.	None	do	Do.
Nursing hospitals schools.	700	300	200	200	None	do	6 months after graduation; 5 years to pay.	do	do	Do.
Nursing collegiate schools.	1,200	810	250	140	None	do	do	do	do	Do.

147. Replies to staff outline received from State University of New York College of Medicine, New York City; and from University of Virginia College of Medicine. Also bulletins. of medical schools in Vermont, South Carolina, and Georgia See also question 131.

Virginia.—Enclosed you will find a detailed statement of loan funds, principal available as of June 30, 1956; also, a copy of the Acts of the Assembly, 1954, and a memorandum of the agreement form which is signed by our students who benefit under the so-called rural physician scholarships. These latter fall clearly within the scope of your inquiry as they amount to $1,000 per year, payable for 4 years to a total of 20 students of medicine each session, who are committed to the agreement that they will return to Virginia after their internship and practice general medicine in a rural area of the State 1 year for each year of scholarship. As the above statement would indicate, there are 20 such scholarships currently active in the medical school. Sixty-one students have thus far benefited from these State rural physician scholarships since they were instituted in 1944.

State University of New York.—There are at present 37 holders of the State scholarship for professional study in medicine. This scholarship is worth $750 per annum, runs for 4 years, and is awarded after a competitive examination. The number of holders of this scholarship varies from year to year, but the aggregate remains about as now.

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148. American Medical Association, Council on Rural Health. Medical Scholarship and Loan Fund Programs. Chicago, Ill., The Association, 1954. See questions 149-152.

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149. Reply to staff outline received from University of Louisville School of Medicine.

There is indeed such a program in Kentucky under the title of 'Rural Kentucky Medical Scholarship Fund.' The word 'scholarship' is actually a misnomer because the fund is, strictly speaking, a loan fund—not an outright gift as the term 'scholarship' usually implies. It was organized about 9 or 10 years ago as a joint cooperative venture between the University of Louisville School of Medicine and the Kentucky State Medical Association. Contributions were solicited and received from both individuals and organizations, a very considerable portion of the support coming from the various county medical societies in the State. To date (all information is as of May 31, 1956) the total assets are listed at $173,575, and there has been loaned $151,105.

The fund has its own board of directors and officers, the dean of the medical school being ex officio on the board and the executive committee of the board.

Medical students may receive a loan from this fund in the amount of $800 per year, which represents the current tuition at this medical school. Under exceptional circumstances the loan may be slightly greater but the circumstances have to be very unusual. In return the recipient of the loan agrees to go to a selected county to practice and to remain in practice there for a period of 1 year for each year

of support in medical school by the loan. An individual receiving a loan for each of his 4 years of school, for example, would be required to practice 4 years in the selected county.

The counties which are approved by the fund are selected by the Kentucky State Board of Health on the basis of need for doctors. This selection is made on the basis of physician-population ratio with a formula which takes into consideration the age of those doctors currently practicing in the separate counties. A list is compiled annually by the State board of health and submitted to the board of directors of the fund for approval. To fulfill the terms of the agreement the student must agree to return to one of these counties so selected upon the completion of his internship and/or military service.

To be eligible to receive a loan, the student must have been admitted to medical school. There has never been pressure brought on this school to admit any certain student simply because he was in line to receive a loan from this fund. Students need not go to the University of Louisville and in fact there are a few who are currently going to other schools. Conversely, a student need not be a resident of the State of Kentucky to be eligible for a loan so long as he agrees to practice in one of the approved Kentucky counties upon completing his medical training.

In a separate table is incorporated the information regarding the experience of the fund with loans. It will be noted that, counting those students currently in school as of the date of this letter, exactly 100 individuals have participated in the program. It will be noted that out of the 58 individuals who have graduated, to date only 3 failed entirely to fulfill their obligations. Out of the 10 listed on the first line who are continuing in practice after fulfilling their obligations, 4 of them moved from their original county to another county which is also in the approved group.

Kentucky rural medical scholarships

[All data as of May 31, 1956, for academic year 1955–56]

Number continuing in practice after fulfilling obligations	10
Number now in practice fulfilling obligations	21
Number who fulfilled obligations and then moved	4
Number who did not fulfill obligations	3
Number now in military service prior to fulfilling obligations	6
Number who did not complete internship required for Kentucky license	1
Number in 3d year surgical residency	1
Number now interning	12
Total number of graduates in program to date	58
Number of students, academic year 1955–56:	
Seniors	10
Juniors	11
Sophomores	4
Freshmen	4
Total number students	29
Number of new loans awarded to students in 1956–57 academic year:	
Seniors	0
Juniors	1
Sophomores	2
Freshmen	10
Total number of students newly participating	13
Total number of individuals who have received loans	100

150. Reply to staff outline received from State University of Iowa College of Medicine. See also question 148.

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151. Reply to staff outline received from University of Illinois College of Medicine.

In 1948 a student loan fund was created by agreement between the Illinois State Medical Society and the Illinois Agricultural Association, whereby a student may borrow as much as $1,250 per year if he is willing to enter a commitment to begin the practice of medicine 2 years after his graduation from medical school at an Illinois county in which the services of a physician are needed, and to remain in practice in that location for a minimum period of 5 years. These funds are loaned without interest, providing the student is able to fulfill the terms of the agreement, but in the event that he is unable to complete these terms interest is charged at the rate of 7 percent per year from the original date of each loan. During 1955–56, 23 of our medical students received loans from this fund. It should be understood that this program is administered by a committee representing the Illinois State Medical Society, and the Illinois Agricultural Association; but it is not controlled in any way by the University of Illinois.

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152. Medical Education in the United States and Canada. Journal of the American Medical Association 159: 590, October 8, 1955. Also reply to staff outline received from American Drug Manufacturers Association, see question 133.

For detailed information on fellowships, scholarships, and so forth, see Association of American Medical Colleges, Fellowships, Funds and Prizes Available for Graduate Medical Work in the United States and Canada, 4th Edition, 1954; also American Medical Association, Medical Scholarship and Loan Fund Programs, August 1954.

Scholarship and Loan Funds in United States Medical Schools

Seventy-one of the 81 medical schools in the United States have either student scholarship or loan funds, or both, available. Since the report of last year covering the 1953–54 academic session, 10 schools have increased their total available scholarship funds by $108,200. Eleven schools have augmented loan funds by $202,330. Thus, for 1954–55, 71 schools had a total of $1,151,760 available for student scholarships and $2,332,170 for loans.

Three of the schools received additional scholarship funds in excess of $20,000 for the year. One of the State university medical schools received additional loan funds of $100,000 for the year.

The Council on Rural Health of the American Medical Association has prepared a brochure on the medical scholarship and loan fund programs available only to the residents of the 17 sponsoring States including **Alabama, Connecticut,** Georgia, Idaho, Illinois, Iowa,

Kansas, Kentucky, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Ohio, Pennsylvania, South Dakota, and Wisconsin. This brochure itemizes the scholarship and loan funds sponsored or administered by State and county medical societies, women's auxiliaries, joint medical society and State boards, and special organizations. It does not include medical school grants, State scholarships and loans not connected with medical societies, and private endowments.

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153. See questions 154–158.

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154. Medical Education in the United States and Canada. Journal of the American Medical Association. 144: 119, September 9, 1950.

VETERANS IN MEDICAL SCHOOL

The percentage of veterans enrolled in the medical schools and schools of the basic medical sciences in the United States during 1949–50 was 65.9 percent, which is almost identical with the figure 65.8 percent for the preceding year. Of the total of 25,103 students 16,541 were veterans. Ninety-nine of the veterans were women.

In table 13 the composition of the student body of the medical schools and schools of the basic medical sciences in this country is recapitulated by classes. Veterans comprised 58.9 percent of the freshman class, a definite decline from the 70 percent of the preceding year and the peak enrollment of 73.4 percent veterans in the freshman class that entered medical school in 1947. The percentages of veterans in other classes were sophomores 69.4 percent, juniors 72.7 percent, and seniors 63.2 percent.

TABLE 13.—*Enrollment by classes of veterans and nonveterans in the medical and basic science schools in the United States, 1949–50*

	Men veterans	Other men	Total men	Women veterans	Other women	Total women	Total men and women
Freshmen	4,135	2,520	6,655	17	370	387	7,042
Sophomores	4,383	1,586	5,969	21	354	375	6,344
Juniors	4,396	1,219	5,615	28	436	464	6,079
Seniors	3,528	1,530	5,058	33	547	580	5,638
Total	16,442	6,855	23,297	99	1,707	1,805	25,103

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155. Public Health Service. Research and Training Grants and Awards of the Public Health Service. Public Health Service Publication No. 415, Washington, D. C., October 1956. See also question 136.

156. Reply to staff outline received from National Science Foundation.

As you know, the Foundation's primary responsibility is for basic research and education in the sciences. It has therefore not engaged in a program in aid to the training of medical practitioners. However, certain of its programs bear on the subject.

With respect to aid to medical education given through fellowships, approximately 75 fellowships have been granted in the medical sciences involving roughly $250,000 in our 5 years of operation from 1952 to 1956. These awards were made to individuals planning careers in medical research rather than in medical practice. However, in addition to those classified as medical sciences, many of the fellowships awarded under the classification "biological sciences," such as those in fields of biochemistry and biophysics, may be medically oriented to some degree. Under our system of classification of fellowships, however, we are unable to include an estimate that would be reliable for your purposes, as we understand them.

An activity of the Foundation in direct support of medical education is the program for support of short-term research by medical students, to which $175,000 is being allocated during the current fiscal year and for which $60,000 was obligated during the 2 previous fiscal years. Through this program, grants are made to medical schools, which, in turn, award short-term stipends (2 to 3 months) to selected medical students who are in this way afforded the opportunity to engage in basic research during the summer vacation or other free quarter. The primary purpose is to permit such students to engage directly in research, thus affording them the opportunity to absorb some of the philosophy, thinking and challenge of research, and to make a better judgment as to whether a research career might hold attraction after completion of the medical curriculum. The frank hope is that a significant proportion of such students will decide to turn to research careers. However, it is certain that some of them will not be diverted from medical practice. These, however, will receive direct benefit in the sense that they will become more critical and, therefore, better practicing physicians.

It is also certain that the program indirectly benefits even those medical students for whom it does not provide opportunity to conduct research. It is well established that experiences of students are transmitted to and have a direct effect upon their contemporaries. It may be safely assumed that the research activity of even a few students results in greater interest and, therefore, better medical education of their colleagues.

Additional activities which may be construed as supporting medical education are a portion of the research-grants program, much of which supports research on basic medical problems. Also, the program for support of international travel, of conferences and symposia, of surveys of fields of science, such as physiology, and other such activities all have a definite and important relation to medical education. Nevertheless, they are indirect in nature. That is, none of them are in direct support of medical education, and it would be extremely difficult to arrive at even an approximate figure giving the part of the survey of physiology, for example, that is properly chargeable to medical education.

157. Reply to staff outline received from Dr. Frank B. Berry, Assistant Secretary, Department of Defense.

The only program sponsored by the Department of Defense which is designed to assist the medical student is our senior medical student program policy (enclosure 1). This program permits a senior medical student to be commissioned as a second lieutenant (ensign, junior grade) and draw active duty pay and allowances his senior (final) year in medical school. In return, the student agrees to serve 3 years on active duty with the Armed Forces. This program is limited to 200 students for each military department.

In addition to the above, the Air Force has a similar program for junior medical students. This program is on a trial basis only and will be discontinued after this year. The Air Force junior medical student program is restricted to 200 students. The provisions are the same as for the senior program but the student agrees to serve 4 years on active duty instead of 3 years.

Number: 1322.5
Date: September 30, 1955

DEPARTMENT OF DEFENSE INSTRUCTION

Subject: Senior medical student program policy.

I. *Purpose.*—The purpose of this instruction is to prescribe the Department of Defense policy with respect to the senior medical student programs conducted by the military departments.

II. *Policy.*—In the interest of obtaining maximum uniformity, economy, and efficiency in the operation of senior medical student programs in the Armed Forces, the following policies are established for the conduct of such programs by the three military departments:

1. Participation in senior medical student programs shall be limited to fourth-year medical students matriculated in schools approved by the Council on Medical Education and Hospitals of the American Medical Association.

2. Participants will be required to serve in the grade of second lieutenant or ensign, as appropriate.

3. Participants will be ordered to active duty with station at their respective medical schools, with full pay and allowances for officers of their grade and years of service for pay purposes.

4. Applicants must agree to accept reappointment as first lieutenant or lieutenant (junior grade), Medical Corps upon graduation from medical school.

5. Participants will be required to serve for 3 years in a normal duty status (which excludes duty performed as an intern) as Medical Corps officers and, in the case of participants who have such an obligation, 2 years of such service will be considered as discharging the participant's obligated military service under the Universal Military Training and Service Act, as amended.

6. Applicants for this program who desire military internship must agree to participate in the national intern matching program. No military department will select an applicant for internship under the matching program who is a participant in the senior medical student

program of another military department. Those who are matched to the service in which commissioned for a military internship will continue on active duty after graduation from medical school. Except as indicated below, participants who are not matched for a military internship with the service in which commissioned will be released from active duty for 1 year upon graduation from medical school for the purpose of undergoing an internship. Such participants, however, must agree to be recalled to active duty at the end of this 12 months' period in order to complete their obligated service. Participants selected for civilian intern training under the auspices of the military department in which they are commissioned will remain on active duty.

7. The period of obligated service prescribed in 5 above for participation in senior medical student programs will be in addition to any period of obligated service incurred as a result of participation in other professional training programs.

FRANK B. BERRY, M. D.,
Assistant Secretary of Defense (Health and Medical).

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158. Replies to staff outline received from Department of Health, Education, and Welfare (reproduced below), Atomic Energy Commission (reproduced below), and Department of Defense.

See also questions 136 and 157.

FEDERAL AID TO MEDICAL EDUCATION THROUGH THE MATERNAL AND CHILD HEALTH AND CRIPPLED CHILDREN'S PROGRAMS

Federal grants-in-aid are made to State agencies to extend and improve maternal and child health services and services for crippled children. Some of these funds may be used to provide postgraduate education for professional persons whose work is related to these programs and to improve the quality of care in the programs. A large part of the funds for training is used for the education of physicians.

The largest expenditures for training under these programs are made from funds reserved for special service and training projects of national or regional significance. In fiscal year 1956, 12 approved maternal and child health training projects in 11 States were devoted partially or entirely to medical training. The sum of $497,000 was allotted for these projects. In addition $28,000 was set aside for fellowships. The projects related to obstetrics, pediatrics, care of prematures, epilepsy, and maternal and child health in schools of public health.

Special crippled children's projects involving medical training were held in 2 States, but fellowships in medical fields were available in 7 States. A total of $143,000 was assigned to training in harelip and cleft palate, rheumatic fever, and epilepsy. The fellowships, amounting to $49,000, were in the fields of rheumatic fever, epilepsy, and pediatric cardiology.

In addition, official maternal and child health and crippled children's agencies use a portion of their regular funds (Federal, State, and local) to provide postgraduate training for medical and other professional personnel employed in State and local programs, as well as for other

similarly qualified personnel whose training will aid in carrying out the approved State maternal and child health and crippled children's programs. Reports for fiscal 1954 show that considerable training was provided to physicians under these programs; much of it was in the form of group training, institutes, refresher courses, and inservice programs of less than 2 weeks' duration, but some of it was in more formal training of individuals for longer periods.

About one-third of those trained for periods of 2 weeks or less under the maternal and child health program were physicians. This type of training was given to approximately 2,000 physicians, primarily in the field of obstetrics and pediatrics. In addition, training was given in the care of premature infants. More extensive training under the maternal and child health program was provided to 60 physicians by one city health department, with expenses paid from State and local funds.

A smaller number of physicians received training under the crippled children's program. Training of 2 weeks or less was provided for 29 physicians, primarily in the fields of rehabilitation, cerebral palsy, and upper extremity prosthesis. Eight physicians received more extensive training principally in the fields of cerebral palsy and pediatric cardiology.

In addition to the above, some medical training is offered through grants to university hospitals and teaching hospitals. These grants may be made primarily for service to mothers and children, but are valuable also in providing graduate and postgraduate training to physicians.

Federal Aid to Medical Education Through Vocational Rehabilitation Programs

Many elements of the program of the Office of Vocational Rehabilitation have a bearing upon medical education in the United States. The present memorandum, based upon program activities for the fiscal year ending June 30, 1956, summarizes relationships which involved medical schools directly.

The numerous instances in which grants were made to affiliated but independently administered institutions, such as hospitals, are not reflected in this statement.

TRAINING

Shortages of medical-rehabilitation personnel are among the most serious in the program. The vocational rehabilitation amendments of 1954 authorized the Office to take positive action in helping to relieve this pressing problem.

1. *Teaching grants.*—Under the teaching-grant program, schools of medicine are able to strengthen the rehabilitation aspects of their curricula. It is hoped that through this device the most recent advances in rehabilitation techniques can be incorporated in medical teaching for the more effective preparation of young physicians for work in rehabilitation programs. During fiscal year 1956, a total of $99,746 was awarded in the form of teaching grants to six medical schools (table 1).

2. *Traineeships.*—Under the traineeship program in medicine, funds are made available to institutions which in turn make grants to se-

lected physicians to pursue residency training in the specialty of physical medicine and rehabilitation. For each full-time resident, the institution receives an allotment of $1,250 to help meet the costs incident to administering this program. Responsibility for supporting this training, previously lodged in the Public Health Service, was transferred to the Office of Vocational Rehabilitation in 1956.

During fiscal year 1956, a total of $287,516 was disbursed in traineeship grants to 21 institutions for the support of 62 trainees (table 2). From this tabulation it will be seen that a small number of institutions, such as the Georgia Warm Springs Foundation, the Montefiore Hospital, and the Institute of Physical Medicine and Rehabilitation (Peoria) are not medical schools offering the basic 4-year undergraduate course leading to the M. D. degree. Each institution, however, is accredited by the AMA Council on Medical Education and Hospitals to offer residency training in physical medicine and rehabilitation.

RESEARCH AND DEMONSTRATION

Grants are available to medical schools for partial support of research and demonstration projects which hold promise of making a substantial contribution to the solution of vocational rehabilitation problems common to all or several States. During the fiscal year 1956, four projects totaling $61,252 were approved and initiated. Two of the grants ($20,865) were awarded to New York University-Bellevue Medical Center; one ($33,768) went to the University of Pennsylvania; and, one ($6,619) was awarded to the George Washington University.

CONSTRUCTION OF FACILITIES

The Office of Vocational Rehabilitation jointly approves and assists the Public Health Service in administering the rehabilitation facilities provisions of the Medical Facilities Survey and Construction Act. During the 1956 fiscal year, a total of $1,118,041 in Federal funds was awarded to eight medical schools for construction of rehabilitation centers (table 3).

In addition, from funds granted to the States for basic support of their vocational-rehabilitation programs, sums of $34,800 and $1,552 were made available by the States to the University of Minnesota and to the Bowman Gray School of Medicine, respectively, for the establishment of rehabilitation facilities.

TABLE 1.—*Rehabilitation traineeship grants in medicine, fiscal year 1956*

Institution	State	Amount of grant	Number of trainees
Harvard Medical School, Massachusetts General Hospital	Massachusetts	$13,600	2
Massachusetts General Hospital	do	15,375	3
Yale University	Connecticut	6,350	1
Columbia University	New York	11,500	2
Institute of Physical Medicine and Rehabilitation (New York City).	do	86,141	18
Hospital of University of Pennsylvania	Pennsylvania	12,500	3
Montefiore Hospital	New York	6,250	1
New York University—Bellevue Medical Center	do	4,000	1
New York Medical College	do	5,700	1
Pennsylvania, University of	Pennsylvania	31,100	13
Yeshiva University	New York	16,000	2
George Washington University	District of Columbia	8,050	2
University of Virginia Hospital	Virginia	8,350	2
Medical College of Virginia	do	7,750	1
Georgia Warm Springs Foundation	Georgia	5,700	1
Institute of Physical Medicine and Rehabilitation (Peoria)	Illinois	6,000	1
Marquette University	Wisconsin	6,000	1
Loyola University	Illinois	3,125	1
Kansas, University of	Kansas	6,350	1
Minnesota, University of	Minnesota	18,375	3
Baylor University Hospital	Texas	9,300	2
Total of 21 institutions		287,516	62

TABLE 2.—*Rehabilitation teaching grants in medicine*

Institution	State	Amount of grant
Tufts University	Massachusetts	$15,000
Albany Hospital	New York	15,000
Pennsylvania, University of	Pennsylvania	19,746
Vanderbilt University	Tennessee	15,000
Utah, University of	Utah	20,000
Washington, University of (Seattle)	Washington	15,000
Total		99,746

TABLE 3.—*Medical school rehabilitation facility projects approved under Public Law 482 (83d Cong.), fiscal year 1956*

Name of facility	Medical school	Federal funds
Institute of Physical Medicine and Rehabilitation New York University-Bellevue Medical Center New York, N. Y.	New York University, Medical School	$182,409
Rehabilitation Center, University of Pennsylvania, Philadelphia, Pa.	University of Pennsylvania, Medical School.	100,000
Rehabilitation Center, West Virginia University Medical Center, Morgantown, W. Va.	University of West Virginia, Medical School.	114,996
Hillis Miller Rehabilitation, University of Florida, Gainesville, Fla.	University of Florida, Medical School	158,146
Children's Rehabilitation Center, University of Kansas, Kansas City, Kans.	University of Kansas, Medical School	100,000
The North Dakota Medical Center and treatment unit, Grand Forks, N. Dak.	University of North Dakota, Medical School.	100,000
Speech and Hearing Clinic, University Hospital, Oklahoma City, Okla.	University of Oklahoma, School of Medicine.	95,172
Stanford Rehabilitarion Center, Stanford University, Palo Alto, Calif.	Stanford University, Medical School	267,327
Total (8 medical schools)		1,118,041

UNITED STATES
ATOMIC ENERGY COMMISSION
Washington 25, D. C., December 11, 1956.

The Atomic Energy Commission has three long-term programs of fellowships to assist in the training of individuals who will be helpful in carrying out the needs of the AEC's program. The three categories of fellowships are as follows:

1. AEC special fellowships in industrial medicine.
2. AEC special fellowships in industrial hygiene.
3. AEC special fellowships in radiological physics.

The special fellowships in industrial medicine allow the fellows to pursue 1 year academic training at any university offering a graduate program in industrial medicine and which provides training facilities in the health problems associated with the atomic energy program. A second year of in-plant training is given at one of the AEC contractor installations: Oak Ridge, Tenn.; Los Alamos, N. Mex.; and Richland, Wash. The fellowships carry an annual stipend of $3,600 plus $350 for each dependent during the year of academic training. There are about 8 fellows each year; 32 physicians have held fellowships since 1950.

The special fellowships in industrial hygiene provide for 9 months of graduate training in industrial hygiene at Harvard University's School of Public Health and University of Pittsburgh's Graduate School of Public Health. The course of study leads to the master's degree. Each fellow receives a stipend of $2,500 plus $350 for each dependent. The fellowships have been available since 1953–54 and there have been 21 fellows from 159 applicants.

The special fellowships in radiological physics provide 9 months of formal training at 4 universities (Rochester, Kansas, Washington, and Vanderbilt Universities) and an additional 3 months of applied training in health physics at a cooperating AEC laboratory (Brookhaven, Hanford, Oak Ridge). This program provides specialized training in the physiological effects of radiation and of safety measures for personnel protection. The program, begun in 1951, has had 277 participants; there were 54 fellows during 1955–56.

A major unmet need exists in the field of education and training in the use of radioisotopes in medical schools and schools of public health. At the present time, there are few medical schools known to the Atomic Energy Commission to be offering formal courses in radioisotope techniques. Few of the present practicing physicians have had any training in radioisotope techniques and many are already requesting such training from their medical schools. The Commission is presently studying this problem to determine what its proper role should be in making training in radioisotope techniques more generally available.

The radioisotope program is planned to furnish enough equipment to provide adequate training facilities at the preclinical level in any medical school requesting such assistance. The medical school in turn would be required to indicate that radioisotope training is available for graduate students and is utilized in undergraduate medical instruction. In fiscal 1957, we plan to establish two programs. If budget approval is obtained in fiscal 1958, we will provide for additional programs in medical schools and schools of public health.

159–167. Data on plans for expansion of medical school teaching facilities based on replies to the following questionnaire.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES AND AMA COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

We have been asked by the legal counsel of the House Committee on Interstate and Foreign Commerce to obtain information from all United States medical schools to assist that committee in assessing the merits of the bills which will be presented in the next session of Congress in aid of medical school construction.

Data from the 1955 questionnaire and the 1956 questionnaire have been presented, but additional data are now requested.

Will you please fill in the appended form and return it at your earliest convenience?

Since preparation of legislation is already underway it is important that this information be made available to the legislative committee within the next 2 weeks. Your cooperation is therefore urgently requested in returning this questionnaire information as quickly as possible.

Sincerely yours,

DEAN F. SMILEY, M. D.,
Secretary, Association of American Medical Colleges.

EDWARD L. TURNER, M. D.,
Secretary, Council on Medical Education and Hospitals, American Medical Association.

Medical school reporting _____
Prepared by _____ Date _____
1. Our basic science building(s) was (were) built _____
   Our clinical building(s) was (were) built _____
   Our medical library was built _____
   Our main animal quarters were built _____
2. The approximate square footage is as follows:
   Basic science building(s) _____
   Clinical science building(s) _____
   Medical library (if separate from science buildings) _____
   Animal quarters (if separate from science buildings) _____
3. If Federal matching money becomes available we plan to spend between July 1, 1957, and June 30, 1962:
   _____ for rehabilitation of _____
   _____ for expansion of _____
   _____ for new construction of _____
4. If I were required to make such an approximation I would estimate that approximately _____ percent of the costs of the above rehabilitation, expansion or new construction will be chargeable to education, _____ percent chargeable to research.
5. I expect that completion of these building plans will enable us to increase the enrollment in our entering class by _____ students.
6. I would expect to procure funds to match the Federal grant from the following sources: _____
   _____

7. Assuming that any expansion of new construction would mean increased operating costs I would plan on meeting these additional costs through _____
8. This medical school or its parent university owns and operates its own teaching hospital: Yes _____. No _____.

Return to:Dean F. Smiley, M. D., secretary, Association of American Medical Colleges, 185 North Wabash Avenue, Chicago 1, Ill.

After December 10, the address will be 2530 Ridge Avenue, Evanston, Ill.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES,
Chicago, Ill., November 26, 1956.

Memorandum:
To: The deans of medical schools.
From: D. F. Smiley, M. D., secretary.

NOTE.—Address will remain 185 North Wabash Avenue, Chicago 1, Ill., until January 7, 1957.

On November 21, 1956, I sent you a questionnaire regarding needs for increased facilities for medical research and teaching.

In order that the figures which will be finally assembled for the House of Representatives may be as authoritative as possible, will you please check the proper blank in the statment below and either append it to your questionnaire return form or return it directly to me?

The return form for your questionnaire of November 21, 1956, was ____ was not ____ checked with our university president or other responsible administrative officer and has ____ has not ____ his approval.

_____
(Name)

_____
(Medical school)

APPENDIX—PART TWO

DENTAL AND DENTAL HYGIENE SCHOOLS

1, 2. American Dental Association, Council on Dental Education. Dental Students' Register, 1955–56. Chicago, American Dental Association; Office of Education, United States Department of Health, Education, and Welfare. Education directory 1955–56, Part 3 Higher Education. Washington, Government Printing Office, 1955. Data reproduced below were compiled from above sources by Division of Dental Resources, United States Public Health Service.

TABLE 1.—*Undergraduate enrollment in dental and dental hygiene schools, by form of school control: 1955–56*

State and school	Dental schools				Dental hygiene schools			
	Public		Private		Public		Private	
	Freshmen	Total	Freshmen	Total	Freshmen	Total	Freshmen	Total
All schools	1,336	4,787	2,109	7,943	597	1,094	503	915
Alabama: University of Alabama	52	196			26	52		
California:								
College of Medical Evangelists			50	133				
College of Physicians and Surgeons			55	211				
University of California	76	254			18	34		
University of Southern California			104	410			37	75
Connecticut: University of Bridgeport							36	68
District of Columbia:								
Georgetown University			110	367				
Howard University			52	214			9	17
Georgia: Emory University			83	297				
Illinois:								
Loyola University			90	362				
Northwestern University			87	353			33	57
University of Illinois	80	279						
Indiana: Indiana University	69	265			22	39		
Iowa: State University of Iowa	55	214			30	58		
Kentucky: University of Louisville	62	234			15	27		
Louisiana: Loyola University			54	209				
Maryland: University of Maryland	110	423						
Massachusetts:								
Forsyth School of Dental Hygiene							76	144
Harvard University			16	57				
Tufts University			99	380				
Michigan:								
University of Detroit			72	287			32	57
University of Michigan	96	349			38	76		
Minnesota: University of Minnesota	103	355			52	92		
Missouri:								
St. Louis University			76	303				
University of Kansas City			122	433			20	36
Washington University			52	200				
Nebraska:								
Creighton University			46	181				
University of Nebraska	33	126						
New Jersey:								
Fairleigh Dickinson University		(1)		(1)			19	40
Seton Hall University		(1)		(1)				

[1] 1st freshman class admitted in fall of 1956.

84939—57——28

TABLE 1.—*Undergraduate enrollment in dental and dental hygiene schools, by form of school control: 1955–56*—Continued

State and school	Dental schools				Dental hygiene schools			
	Public		Private		Public		Private	
	Freshmen	Total	Freshmen	Total	Freshmen	Total	Freshmen	Total
New York:								
Broome County Technical Institute					(1)	(1)		
Columbia University			40	150			14	31
Eastman Dental Dispensary							37	70
Erie County Technical Institute					46	92		
Long Island Agricultural and Technical Institute					50	79		
New York City Commercial College					84	153		
New York University			170	615				
University of Buffalo			68	233				
North Carolina: University of North Carolina	50	189			20	33		
Ohio:								
Ohio State University	120	466			60	112		
Western Reserve University			60	232				
Oregon: University of Oregon	80	294			15	27		
Pennsylvania:								
Temple University			132	522			54	99
University of Pennsylvania			140	531			49	92
University of Pittsburgh			96	384				
Tennessee:								
Meharry Medical College			36	120			7	15
University of Tennessee	110	372			32	58		
Texas:								
Baylor University			84	321			30	30
University of Texas	90	262			21	21		
Vermont: University of Vermont					13	31		
Virginia: Medical College of Virginia	75	230						
Washington: University of Washington	75	279			14	28		
West Virginia: West Liberty State College					41	82		
Wisconsin: Marquette University			115	438			50	84

[1] 1st freshman class admitted in fall of 1956.

3. American Dental Association, Council on Dental Education. Dental Students' Register, Chicago, American Dental Association. Annual publications, 1939 through 1955–56; Horner, H. H., Dental Education Today. Chicago, University of Chicago Press, 1947, p. 30. Data reproduced below were compiled from above sources by Division of Dental Resources, United States Public Health Service.

TABLE 3.—*Number of dental schools, graduates, undergraduates, and freshmen, by school year: 1920–21 to 1955–56*

School year	Number of schools	Enrollment		Number of graduates	School year	Number of schools	Enrollment		Number of graduates
		All undergraduates	Freshmen				All undergraduates	Freshmen	
1955–56	43	12,730	3,445	----------	1937–38	39	7,184	1,821	1,704
1954–55	43	12,601	3,329	3,081	1936–37	39	7,397	2,131	1,739
1953–54	43	12,516	3,274	3,084	1935–36	39	7,306	2,175	1,736
1952–53	42	12,370	3,244	2,945	1934–35	39	7,175	2,013	1,840
1951–52	42	12,169	3,260	2,975	1933–34	39	7,160	1,876	1,864
1950–51	42	11,891	3,226	2,830	1932–33	39	7,508	1,637	1,986
1949–50	41	11,336	3,119	2,565	1931–32	39	8,031	1,913	1,840
1948–49	41	10,132	3,102	1,561	1930–31	39	8,129	1,929	1,842
1947–48	40	8,996	3,055	1,713	1929–30	40	[2]	[2]	1,561
1946–47	40	8,287	2,974	[1] 2,225	1928–29	40	[2]	[2]	2,442
1945–46	39	7,274	1,201	[1] 2,666	1927–28	40	[2]	[2]	2,563
1944–45	39	[1] 8,590	[1] 2,496	[1] 3,212	1926–27	44	[2]	[2]	2,642
1943–44	39	[1] 9,014	[1] 2,562	[1] 2,470	1925–26	43	[2]	[2]	2,610
1942–43	39	[1] 8,847	[1] 2,702	1,926	1924–25	43	[2]	[2]	2,590
1941–42	39	[1] 8,355	[1] 2,476	1,784	1923–24	45	[2]	[2]	3,422
1940–41	39	7,720	2,305	1,568	1922–23	45	[2]	[2]	3,271
1939–40	39	7,407	2,183	1,757	1921–22	45	[2]	[2]	1,765
1938–39	39	7,331	2,074	1,794	1920–21	46	[2]	[2]	1,795

[1] Totals reflect enrollment of more than 1 class in some schools under accelerated programs in operation during World War II.
[2] Not available.

4, 5. American Dental Association, Council on Dental Education. Dental Students' Register 1955–56 Chicago, American Dental Association; American Dental Association. American Dental Directory, 1956 and 1957 editions. Chicago, American Dental Association. Data reproduced below were compiled by Division of Dental Resources, United States Public Health Service.

TABLE 4.—*Dental and dental hygiene schools established since 1945 and proposed dental schools*

NEW SCHOOLS ESTABLISHED

	Date	Type of control
Dental schools:		
University of Washington	1946	Public.
University of Alabama	1948	Do.
University of North Carolina	1950	Do.
College of Medical Evangelists	1953	Private.
Seton Hall University	1956	Do.
Fairleigh Dickinson University	1956	Do.
Dental hygiene schools:		
Long Island Agricultural and Technical Institute	1946	Public.
New York City Commercial College	1947	Do.
Erie County Technical Institute	1947	Do.
University of Bridgeport	1949	Private.
University of Vermont	1949	Public.
Indiana University	1950	Do.
University of Detroit	1950	Private.
Fairleigh Dickinson University	1950	Do.
University of Washington	1950	Public.
University of Alabama	1952	Do.
University of Louisville	1952	Do.
State University of Iowa	1953	Do.
University of North Carolina	1953	Do.
Baylor University	1955	Private.
University of Texas	1955	Public.
Broome County Technical Institute	1956	Do.

DENTAL SCHOOLS CURRENTLY BEING PLANNED

	Date	Type of control
University of Puerto Rico	1957	Public.
University of West Virginia	1958	Do.
University of Colorado	[1]	Do.
University of Kentucky	[1]	Do.
University of South Carolina	[1]	Do.

[1] Not available.

6. See question 1.

7. American Dental Association, Council on Dental Education. Dental Students' Register, 1955–56. Chicago, American Dental Association. Data from table 1 reproduced below.

TABLE 7A.—*Other than undergraduate dental students enrolled in dental schools: 1955–56*

School	Total[1]	Dental hygienists	Postgraduates[2]	Graduates	Special students
Total	2,538	1,224	748	425	141
University of Alabama	65	52	5	8	
College of Medical Evangelists					
College of Physicians and Surgeons	4			4	
University of California	9		5	4	
University of Southern California	85	75	2	8	
Georgetown University	15		3	12	
Howard University	17	17			
Emory University	3		1	2	
Loyola University, Chicago	6		6		
Northwestern University	89	57	5	27	
University of Illinois	46		32	14	
Indiana University	75	39		36	
State University of Iowa	89	58		31	
University of Louisville	31	27	4		
Loyola University, New Orleans					
University of Maryland	13			13	
Harvard University					
Tufts University	44		34	10	
University of Detroit	76	57	1	4	14
University of Michigan	127	76	6	45	
University of Minnesota	156	92	7	16	41
St. Louis University	12			12	
University of Kansas City	61	37		24	
Washington University	9		2	6	1
Creighton University					
University of Nebraska	10			10	
Columbia University	78	34	44		
New York University	147		130		17
University of Buffalo	8		8		
University of North Carolina	42	33		9	
Ohio State University	181	112	21	14	34
Western Reserve University	3			3	
University of Oregon	34	27	2	2	3
Temple University	99	99			
University of Pennsylvania	446	92	271	62	21
University of Pittsburgh	22		6	16	
Meharry Medical College	24	15			9
University of Tennessee	76	58	7	10	1
Baylor University	34	30	4		
University of Texas	163	21	142		
Medical College of Virginia	1			1	
University of Washington	48	26		22	
Marquette University	90	90			

[1] Excludes 4,764 students enrolled in continuation courses.
[2] Based on estimated enrollment for all or part of the 1955–56 school year.

American Dental Association, Council on Dental Education. Report on Graduate and Postgraduate Programs in Dentistry, 1956–57. Data reproduced below. Tables 7B, C and D below, were compiled from this source by Division of Dental Resources, United States Public Health Service.

Graduate programs offered by dental schools

A graduate program consists of a planned sequence of courses leading to an advanced degree, such as an M. S., M. S. D., or Ph. D. There are 207 such programs being offered during the 1956–57 school year in 30 areas of the dental curriculum. Graduate programs are being offered by 73 percent of the dental schools. A survey made for

the 1955–56 school year showed that there were 186 programs in 27 areas of the dental curriculum and that 70 percent of all dental schools offered a graduate program. Thus, there has been an increase of nearly 11 percent in the number of graduate programs offered during 1956–57.

The areas in which graduate programs are offered and the number of programs in each area are as follows:

Anatomy	14	Oral diagnosis	3
Anesthesiology	1	Oral medicine	4
Anthropology	1	Oral pathology	11
Bacteriology	9	Oral surgery	24
Biological chemistry	12	Orthodontics	21
Crown and bridge prosthesis	5	Pathology	1
Dental materials	4	Pedodontics	15
Dental medicine	1	Periodontics	13
Dentistry	3	Pharmacology	6
Endodontics	3	Physiology	12
General pathology	8	Preventive dentistry	1
Histology and embryology	4	Prosthodontics	14
Microbiology	4	Public health dentistry	3
Occluso-rehabilitation	1	Research	2
Operative dentistry	5	Roentgenology	2

The graduate programs range in length from 9 months to 5 years. In most cases the degree awarded upon completion of the graduate program is conferred by the university or the graduate school.

TABLE 7B.—*Number of students accepted for graduate work in recognized dental specialties*

Schools offering programs	Oral pathology	Oral surgery	Ortho-dontics	Pedo-dontics	Perio-dontics	Prostho-dontics	Public health dentistry
Alabama	2	2	1	2	2	2	
Georgetown	2	4				1	
Indiana	(1)	4	(1)	(1)	(1)	(1)	12
Iowa	2	2	6	4	3	2	
Maryland	3						
Tufts	2						
Michigan	2	3	7	6	4	2–3	(1)
Minnesota	2	2	5	2	3	2	
St. Louis	3						
Ohio	2	6	(1)		6	2	
Pennsylvania	2	30	10		10	(1)	
Physicians and Surgeons		(1)					
California		1					
Illinois		2	10	4			
Loyola (Chicago)		(1)	(1)		(1)		
Northwestern		6	12	6	6		
Maryland		2					
Tufts		4	10	2	3	8	
Detroit		1				1	
Kansas City		6	4	4		2–3	
St. Louis		2	7				
Washington (St. Louis)		2	3			1	
New York		(1)			(1)		
North Carolina		3	5	3			
Pittsburgh		5	5	2	2	2	
Baylor		2			4	2	
Southern California		10					
Nebraska			3	3			
Tennessee			10				
Washington (Seattle)			10	2			
Virginia				(1)			
Harvard							(1)

1 Unspecified.

TABLE 7C.—*Number of students accepted for graduate work in fields related to dentistry and in specific dental fields*

Schools offering programs	Anatomy	Anesthesiology	Anthropology	Bacteriology	Biological chemistry	Crown and bridge prosthesis	Dental materials	Dental medicine	Dentistry	Endodontics	General pathology	Histology and embryology	Microbiology	Occluso-rehabilitation	Operative dentistry	Oral diagnosis	Oral medicine	Pathology	Pharmacology	Physiology	Preventive dentistry	Research	Roentgenology
Alabama	(1)				(1)	2			2	(1)	(1)		(1)		2	2	2		1	(1)			
Georgetown	2			2	2		2				2		2						2	2			
Illinois	12			12	12						3	4							12	12			
Northwestern	3			3	3		3				3	3							3	3	(1)		
Harvard																						2-6	
Indiana	(1)				(1)	(1)	(1)			(1)					(1)								
Maryland	2			2	2							2								2			
Columbia	1				1																		
New York	(2)				(2)																		
Rochester	(3)			(3)	(3)				3-4		(3)									(1)			
Ohio	3			3							3									3			
Western Reserve	(2)																					2-4	
Virginia	(2)			(1)	(1)																		
Loyola (Chicago)	(1)																						
Louisville																	1						
Pittsburgh		(1)		1-2	1-2															1-2			
Oregon					1								1						1	1			
Columbia					(1)							(1)			3	2		(1)		(1)			
New York						3									4								
Iowa						2	2	2-3							4		1		2				
Michigan						4																	
Minnesota								7									1						
California																							(1)
Washington (St. Louis)											1-2	1-2											
Pennsylvania														2		2							
Tufts																							

[1] Unspecified.

Postgraduate programs offered by dental schools

A postgraduate program is a planned sequence of courses that does not lead to a degree but one for which the student may be awarded a certificate.

There are 100 postgraduate programs being offered during the 1956–57 school year in 17 areas of the dental curriculum. Postgraduate programs are offered by 59 percent of the dental schools. During the 1955–56 school year there were 94 postgraduate programs in 16 areas of the dental curriculum. The number of programs available in each area are as follows:

Anesthesiology	3	Oral rehabilitation	1
Crown and bridge	6	Oral surgery	17
Dental materials	2	Orthodontics	13
Endodontics	3	Pedodontics	13
General dentistry	6	Pedodontics-cerebral palsy	1
Occluso-rehabilitation	1	Periodontics	11
Oral diagnosis	3	Prosthodontics	13
Oral histology	1	Roentgenology	1
Oral pathology	5		

TABLE 7D.—*Number of students accepted for postgraduate programs in dentistry*

Schools offering programs	Anesthesiology	Crown and bridge	Dental materials	Endodontics	General dentistry	Occluso-rehabilitation	Oral diagnosis	Oral histology	Oral pathology	Oral rehabilitation	Oral surgery	Orthodontics	Pedodontics	Pedodontics (cerebral palsy)	Periodontics	Prosthodontics	Roentgenology
Alabama	(1)	2	2	2	2	.....	2-3	.....	2-3	.....	2-3	2-3	2-3	.....	2-3	2-3	2-3
Georgetown	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Louisville	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pittsburgh	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Southern California	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	1	.....
Emory	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	2	2	.....	.....	1	1	.....
Indiana	.....	5	5	.....	.....	.....	.....	.....	.....	.....	2	.....	(1)	.....	2	(1)	.....
Oregon	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....
Washington (Seattle)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10	2	.....	.....	.....	.....
Illinois	.....	.....	.....	(1)	6	.....	.....	4	4	.....	2	18	4	.....	(1)	6-9	.....
Howard	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....
Marquette	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tufts	.....	.....	.....	.....	.....	12	2	.....	2	.....	4	10	2	.....	4	.....	.....
Columbia	.....	.....	.....	.....	.....	.....	5	.....	.....	.....	4	22	4	2	5-6	8	.....
Ohio	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	3	12	2	.....	4	2	.....
New York	.....	.....	.....	.....	.....	.....	.....	.....	.....	8	12	24	(1)	.....	30	10	.....
Loyola (Chicago)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	2-4	.....	.....	.....	.....	.....
Northwestern	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6	.....	6	.....	6	.....	.....
Detroit	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....
Washington (St. Louis)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....
North Carolina	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	5	4	.....	.....	.....	.....
Tennessee	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	6	.....	.....	.....	.....
Baylor	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	2	.....
Kansas City	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	.....
Buffalo	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8	.....	.....	.....	.....

[1] Unspecified.

8. See question 3.

9, 10. American Dental Association, Council on Dental Education. Dental Students' Register. Chicago, American Dental Association. 1946 and 1955–56 editions. Data derived from above sources by Division of Dental Resources, United States Public Health Service.

11, 12. American Dental Association, Council on Dental Education. Dental Students' Register, 1955–56 Chicago, American Dental Association. Data reproduced below were derived from above sources by Division of Dental Resources, United States Public Health Service.

TABLE 11.—*Number of dental schools, by size of freshman class: 1955–56*

Freshman enrollment	Number of schools		
	Total	Public	Private
Number of schools	43	17	26
Average enrollment	80	79	81
Under 50	5	1	4
50 to 100	27	12	15
Over 100	11	4	7

13. See question 3.

14. American Dental Association, Council on Dental Education. Dental Students' Register. Chicago, American Dental Association. 1941 and 1955–56 editions. Data presented below were derived from above sources by Division of Dental Resources, United States Public Health Service.

TABLE 14.—*Number of schools, by size of freshman enrollment increase between 1941–42 and 1955–56*

Percent increase in freshman enrollment	Number of schools		
	Total	Public	Private
100 and over	5	3	2
75 to 99	2		2
50 to 74	7	2	5
25 to 49	9	5	4
Under 25	10	4	6
No change	2		2
Decrease	4		4

15. American Dental Association, Council on Dental Education. Comments prepared for the use of the agencies studying the need for financial aid to dental and dental hygiene education (mimeographed). Chicago, American Dental Association.

16. 1954–55 Dental Students' Register. Canad. Dent. A. J., 21: 244–246, Apr. 1955; Dental Students' Register 1948–49. Canad. Dent. A. J., 15: 153–154, March 1949.

17–23. American Dental Association, Council on Dental Education. Report on the 1955 Study of Applicants to Dental and Dental Hygiene Schools (mimeographed). Chicago, American Dental Association; Department of Commerce, Bureau of the Census. Current Population Reports, Series

P–25, No. 145. Estimates of the population of States and selected outlying areas of the United States: July 1, 1950, to 1955. October 19, 1956, American Dental Association, Council on Dental Education. Comments prepared for the use of the agencies studying the need for financial aid to dental and dental hygiene education (mimeographed). Chicago, American Dental Association. Data presented below were derived from above sources by Division of Dental Resources, United States Public Health Service.

TABLE 17.—*Number of dental school applicants and accepted freshman students 1947 and 1951–55*

Year	Applicants	Students accepted	Applicants per student accepted	Number per 100,000 population	
				Applicants	Students accepted
1955	7,205	3,445	2.1	4.4	2.1
1954	5,458	3,357	1.6	3.4	2.1
1953	4,779	3,226	1.5	3.0	2.0
1952	5,407	3,207	1.7	3.5	2.1
1951	5,885	2,956	2.0	3.8	1.9
1947	10,300	3,300	3.1	7.2	2.3

24. American Dental Association, Council on Dental Education. Dental Students' Register, 1955–56. Chicago, American Dental Association; Department of Commerce, Bureau of the Census. Current Population Reports. Series P–25, No. 145. Estimates of the population of States and selected outlying areas of the United States: July 1, 1950, to 1955. October 19, 1956. Data presented below were derived from above sources by Division of Dental Resources, United State Public Health Service.

TABLE 24.—*Freshman dental school places, by type of school and by region and subregion: 1955–56*

Region and subregion	Number of freshman places			Freshman places per 100,000 population		
	All schools	Public	Private	All schools	Public	Private
United States	3,445	1,336	2,109	2.1	0.8	1.3
Northeast	1,033	110	923	2.2	.3	1.9
Mid-Atlantic	918	110	808	2.4	.3	2.1
New England	115	----	115	1.2	----	1.2
North Central	1,276	556	720	2.6	1.1	1.5
Great Lakes	892	468	424	2.4	1.3	1.1
Midwest	384	88	296	3.3	.8	2.5
South	522	349	173	1.5	1.0	.5
Lower Southeast	189	52	137	1.0	.3	.7
Upper Southeast	333	297	36	2.3	2.1	.2
West	614	321	293	1.8	.9	.9
Far West	440	231	209	2.5	1.3	1.2
Rocky Mountains	----	----	----	----	----	----
Southwest	174	90	84	1.4	.7	.7

25, 26. American Dental Association, Council on Dental Education. Report on the 1955 study of Applicants to dental and dental hygiene schools (mimeographed). Chicago, American Dental Association; Department of Commerce, Bureau of the Census. Current Population Reports, Series P–25, No. 145. Estimates of the population of States and selected outlying areas of the United States: July 1, 1950 to 1955. October 19, 1956. Data reproduced below derived from above sources by Division of Dental Resources, United States Public Health Service.

TABLE 25.—*Number of applicants to dental schools, by home State of applicant: 1955–56*

Region and State	Number	Percent	Applicants per 100,000 population	Region and State	Number	Percent	Applicants per 100,000 population
Northeast	1,972	27.3	4.1	South	1,345	18.7	4.0
Maine	27	.4	3.0	Virginia [1]	112	1.6	3.1
New Hampshire	26	.3	4.7	West Virginia	57	.8	2.9
Vermont	17	.2	4.6	North Carolina [1]	154	2.2	3.5
Massachusetts [1]	217	3.0	4.5	South Carolina	67	.9	2.9
Rhode Island	34	.5	4.2	Georgia [1]	122	1.7	3.3
Connecticut	108	1.5	4.9	Florida	139	1.9	3.9
New York [1]	797	11.0	5.0	Kentucky [1]	102	1.4	3.4
New Jersey	242	3.4	4.5	Tennessee [1]	154	2.2	4.5
Pennsylvania [1]	359	5.0	3.3	Alabama [1]	115	1.6	3.7
Delaware	17	.2	4.4	Mississippi	96	1.3	4.5
Maryland [1]	78	1.1	2.8	Arkansas	117	1.6	6.5
District of Columbia [1]	50	.7	5.8	Louisiana [1]	110	1.5	3.7
North Central	1,892	26.1	3.9	West	1,747	24.4	5.1
Ohio [1]	352	4.9	3.9	Montana	57	.8	9.1
Indiana [1]	154	2.1	3.6	Idaho	47	.7	7.7
Illinois [1]	375	5.2	4.0	Wyoming	19	.3	6.1
Michigan [1]	388	5.4	5.3	Colorado	52	.7	3.4
Wisconsin [1]	122	1.7	3.3	New Mexico	24	.3	3.0
Minnesota [1]	100	1.4	3.1	Arizona	36	.5	3.6
Iowa [1]	126	1.7	4.7	Utah	121	1.7	15.2
Missouri [1]	107	1.5	2.5	Nevada	8	.1	3.4
North Dakota	16	.2	2.5	Washington [1]	142	2.0	5.4
South Dakota	23	.3	3.4	Oregon [1]	125	1.7	7.4
Nebraska [1]	61	.8	4.4	California [1]	725	10.1	5.6
Kansas	68	.9	3.3	Oklahoma	118	1.7	5.3
				Texas [1]	273	3.8	3.1
				Outside United States	249	3.5	(2)

[1] States with dental schools operating in 1955–56.
[2] Not available.

27. American Dental Association, Council on Dental Education. Report on the 1955 Study of Applicants to Dental and Dental Hygiene Schools (mimeographed). Chicago, American Dental Association. Data presented in answer to this question are not exactly comparable with figures relating to applicants in earlier questions, since many students apply for admission to more than one school.

28. Data presented below were derived from table in question 1.

TABLE 28.—*Number of schools, by type of school and by region, 1956–57*

Region and subregion	All schools	Public	Private
United States	45	17	28
Northeast	13	1	12
Mid-Atlantic	11	1	10
New England	2		2
North Central	16	7	9
Great Lakes	10	5	5
Midwest	6	2	4
South	8	5	3
Lower Southeast	3	1	2
Upper Southeast	5	4	1
West	8	4	4
Far West	6	3	3
Rocky Mountain			
Southwest	2	1	1

29, 30. See question 24.

31. See question 25.

32. American Dental Association, Council on Dental Education. Dental Students' Register, 1955–56 Chicago, American Dental Association. Table 9 reproduced on following page.

Admission requirements for dental students

School or college	Accelerated program	Semester hours	Basic predental requirements [1]										Special high school course	4-year tuition [2]		Scholarships
			English		Inorganic chemistry		Organic chemistry		Biology		Physics					
			Semester hours	Quarter hours	Semester hours	Quarter hours	Semester hours	Quarter hours	Semester hours	Quarter hours	Semester hours	Quarter hours		Out of State	State	
Alabama: University of Alabama	No	90	6		8		4		12		6		No	3,200	1,600	Yes.
California:																
College of Medical Evangelists	No	60	6		8		6		8		8		No	3,520	3,520	No.
College of Physicians and Surgeons	No	60	6	9	8	12	4	6	8	12	8	12	No	2,400	2,400	No.
University of California	No	60	6	9	10	15	6	9	6–8	9–12	8	12	Yes	1,400	800	Yes.
University of Southern California	No	60	6		6		6		6		6		No	3,200	3,200	Yes.
District of Columbia:																
Georgetown University	No	60	12	18	8	12	8	12	8	12	8	12	No	2,400	2,400	No.
Howard University	No	60	6		8		4		8		8		No	1,400	1,400	Yes.
Georgia: Emory University	No	60	6	9	8	12	4	6	6	9	6	9	No	2,800	2,800	Yes.
Illinois:																
Loyola University, Chicago	No	60	6	9	8	12	4	6	8	12	8	12	Yes	2,400	2,400	No.
Northwestern University	No	60	6	9	8	12	4	6	8	12	8	12	No	2,800	2,800	Yes.
University of Illinois	No	60	6	9	8	12	4	6	6	9	6	9	Yes	2,454	1,302	Yes.
Indiana: Indiana University	No	60	6	9	8	12	4	6	6	9	6	9	No	2,400	1,280	Yes.
Iowa: State University of Iowa	No	60	8		8		8		8		8		No	2,096	1,216	No.
Kentucky: University of Louisville	No	60	6		6		3		6		6		No	[3] 2,912	[3] 2,512	No.
Louisiana: Loyola University, New Orleans	No	60	6		8		4		8		8		No	2,400	2,400	No.
Maryland: University of Maryland	No	60	6		8		6		8		8		No	2,200	1,320	Yes.
Massachusetts:																
Harvard University	No	60	8		8		8		8		8		No	4,000	4,000	Yes.
Tufts College	No	60	6		8		4		6		6		No	3,400	3,400	Yes.
Michigan:																
University of Detroit	No	60	6		8		4		8		8		No	2,400	2,400	No.
University of Michigan	No	60	6	9	8	12	6	9	8	12	8	12	No	3,080	1,760	Yes.
Minnesota: University of Minnesota	No	60		9		12		8		10		12	No	2,520	1,200	No.
Missouri:																
St. Louis University	No	60	6	10	8	12	4	6	6	10	6	10	No	2,600	2,600	No.
University of Kansas City	No	90	6		8		4		8		8		No	2,760	2,760	Yes.
Washington University	No	60	6	9	6	9	4	6	6	9	6	9	No	2,600	2,600	Yes.
Nebraska:																
Creighton University	No	60	6		8		4		6		6		No	2,443	2,443	No.
University of Nebraska	No	60	6		6		4		6		8		No	[4] 3,480	[4] 2,840	Yes.

New York:																
Columbia University	No	90	6	9	6	9	6	9	6	9	6	9	No	3,300	3,300	Yes.
New York University	No	90	6	12	8–12		6		6–8		6–8		No	3,632	3,632	Yes.
University of Buffalo	No	60	6	9	6	9	3	4½	6	9	6	9	No	2,800	2,800	Yes.
North Carolina: University of North Carolina	No	96	6–12		8		8		8		8		Yes	4,800	2,400	Yes.
Ohio:																
Ohio State University	No	60		10		15		10		10		10	Yes	3,480	1,980	No.
Western Reserve University	No	60	6		8		4		6		6		No	2,800	2,800	No.
Oregon: University of Oregon	No	60		9		15		8		12		9	No	3,108	2,076	Yes.
Pennsylvania:																
Temple University	No	60	12	18	8	12	4	6	8	12	8	12	No	2,400	2,400	No.
University of Pennsylvania	No	60	6		8		4		6		6		No	3,200	3,200	Yes.
University of Pittsburgh	No	60	6		8		4		6		6		Yes	2,500	2,500	Yes.
Tennessee:																
Meharry Medical College	No	60	6	9	8	12	4	8	8	12	8	12	No	2,000	2,000	Yes.
University of Tennessee	Yes	60		9		12		12		12		12	No	2,100	1,500	Yes.
Texas:																
Baylor University	No	90	8	12	8	12	8	12	8	12	8	12	No	2,600	2,600	No.
University of Texas	No	60	6		8		6		12		8		No	1,400	1,100	Yes.
Virginia: Medical College of Virginia	No	90	6		8		4		8		8		No	3,200	1,900	Yes.
Washington: University of Washington	No	60		9		15		10		15		15	Yes	1,980	1,200	No.
West Virginia: West Virginia University	No															
Wisconsin: Marquette University	No	60	6	9	8	12	4	6	8	12	8	12	No	2,800	2,800	Yes.

[1] Represents minimum requirements of the Council on Dental Education; some schools have additional requirements.

[2] Tuition figures do not always include all fixed fees.

[3] Represents tuition costs for noncounty and county residents.

[4] Represents total cost of 4-year dental training program.

33. Council on Dental Education, American Dental Association. Information furnished in response to staff inquiry.

34, 35. American Dental Association, Council on Dental Education. Comments prepared for the use of the agencies studying the need for financial aid to dental and dental hygiene education (mimeographed). Chicago, American Dental Association.

36. Data compiled from dental school catalogs for the year 1955–56 by Division of Dental Resources, United States Public Health Service.

37. American Dental Association, Council on Dental Education. Report on the 1955 study of applicants to dental and dental hygiene schools (mimeographed). Chicago, American Dental Association.

38. Data compiled from dental school catalogs for the year 1955–56 by Division of Dental Resources, United States Public Health Service.

39. Council on Dental Education, American Dental Association. Information furnished in response to staff inquiry.

40. American Dental Association, Council on Dental Education. Dental Students' Register, 1955–56, Chicago, American Dental Association. Data from table 5 reproduced below.

Number graduated from public and private schools, by individual school: 1955

PUBLIC SCHOOLS	
All schools	1,176
University of Alabama	42
University of California	58
University of Illinois	69
Indiana University	78
State University of Iowa	46
University of Louisville	50
University of Maryland	104
University of Michigan	94
University of Minnesota	88
University of Nebraska	31
University of North Carolina	39
Ohio State University	114
University of Oregon	78
University of Tennessee	120
University of Texas	54
Med. College of Virginia	51
University of Washington	60

PRIVATE SCHOOLS	
All schools	1,905
College of Medical Evangelists	[1] 0
College of Physicians and Surgeons	56
University of Southern California	103
Georgetown University	95
Howard University	49
Emory University	74
Loyola University, Chicago	87
Northwestern University	110
Loyola University, New Orleans	53
Harvard University	14
Tufts College	89
University of Detroit	72
St. Louis University	65
University of Kansas City	102
Washington University	46
Creighton University	46
Columbia University	35
New York University	136
University of Buffalo	57
Western Reserve University	60
Temple University	134
University of Pennsylvania	129
University of Pittsburgh	95
Meharry Medical College	30
Baylor University	64
Marquette University	104

[1] First class will be graduated in 1957.

41. See question 3.

42. American Dental Association, Council on Dental Education. Dental Students' Register, 1952–53 and 1955–56 editions. Chicago, American Dental Association; Horner, H. H., Dental Education Today. Chicago, University of Chicago Press, 1947, p. 30; Department of Commerce,

Bureau of the Census. Current Population Reports, Series P–25, No. 145. Estimates of the population of States and selected outlying areas of the United States: July 1, 1950 to 1955. October 19, 1956, and Series P–25, No. 139. Estimates of the population of States: 1900 to 1949; June 27, 1956. Data presented below derived from above sources by Division of Dental Resources, United States Public Health Service.

TABLE 42.—*Dental school graduates: Annual averages*

Years	Average yearly graduates	Graduates per 100,000 population
1950–55	2,747	17.7
1940–49	2,094	15.2
1930–39	1,791	14.1
1920–29	2,401	21.0
1910–19	2,477	25.0
1900–09	2,069	25.0

43, 44. American Dental Association, Council on Dental Education. Information furnished in response to staff inquiry.

45. Department of Commerce, Bureau of the Census. Current Population Reports. Series P–25, No. 78. Illustrative projection of the population of the United States, by age and sex: 1955 to 1975; August 21, 1953.

See also question 42.

46–48. Pennell, E. H., and Pennell, Maryland Y. Health Manpower Source Book, section 7. Dentists. Washington, Government Printing Office, 1955, p. 152; United States Public Health Service, Division of Dental Resources. A study of dental manpower requirements in the West. Western Interstate Commission for Higher Education, 1956; American Dental Association, Bureau of Economic Research and Statistics. Distribution of dentists in the United States by State, region, district, and county. Chicago, American Dental Association, 1956, p. 5. Data presented below were derived from above sources by Division of Dental Resources, United States Public Health Service.

TABLE 46A.—*Number of dentists, by practice status, 1940–1975*

Year	All dentists	Practice status		
		In non-Federal practice	In Federal service	Retired or active outside the profession
Projected: [1]				
1975	117,500	94,350	11,000	12,150
1970	111,950	89,300	10,300	12,350
1965	105,800	84,100	9,450	12,250
1960	99,050	78,650	8,500	11,900
Actual:				
1955	94,511	75,757	7,222	11,532
1950	89,691	75,025	2,575	12,091
1940	81,686	[2] 70,417	11,269	

[1] Based upon assumption that the number of graduates will increase to 3,360 by 1961 and continue at the level through 1975.
[2] Includes a small number of dentists in Federal service.

TABLE 46B.—*Number of active non-Federal dentists per 100,000 persons, by region and subregion, 1900–1955*

Region and subregion	Number of dentists						
	1955	1950	1940	1930	1920	1910	1900
United States	75,757	75,025	70,417	71,055	56,152	39,997	29,665
Northeast	28,372	28,743	26,009	25,741	20,484	14,202	10,611
Mid-Atlantic	22,952	23,240	20,971	20,157	15,306	10,544	7,777
New England	5,420	5,503	5,038	5,584	5,178	3,658	2,834
North Central	23,062	24,020	24,820	25,266	20,122	14,631	11,555
Great Lakes	17,669	18,213	18,405	18,385	13,959	9,993	8,032
Midwest	5,393	5,807	6,415	6,881	6,163	4,638	3,523
South	9,140	8,338	7,371	7,484	6,456	5,017	3,814
Lower Southeast	5,117	4,657	4,099	4,236	3,719	2,867	2,099
Upper Southeast	4,023	3,681	3,272	3,248	2,737	2,150	1,715
West	15,183	13,924	12,217	12,564	9,090	6,147	3,685
Far West	9,720	8,769	7,599	7,797	5,167	3,353	1,994
Rocky Mountains	1,773	1,655	1,588	1,725	1,641	1,080	658
Southwest	3,690	3,500	3,030	3,042	2,282	1,714	1,033

Region and subregion	Active dentists per 100,000 persons						
	1955	1950	1940	1930	1920	1910	1900
United States	46	50	53	58	53	43	39
Northeast	59	64	64	67	62	49	45
Mid-Atlantic	60	65	65	66	59	47	43
New England	56	59	60	68	70	56	51
North Central	48	54	62	65	59	49	44
Great Lakes	48	55	62	66	58	49	45
Midwest	46	52	60	64	61	48	41
South	27	26	26	29	28	24	21
Lower Southeast	26	26	25	29	28	24	21
Upper Southeast	28	27	27	30	28	25	22
West	44	47	54	62	58	50	46
Far West	56	60	77	94	92	78	81
Rocky Mountain	46	48	53	63	64	53	50
Southwest	29	31	31	34	31	28	25

49, 50. Data presented below were derived from sources cited in questions 46, 47, and 48 by Division of Dental Resources, United States Public Health Service.

TABLE 49.—*Active non-Federal dentists per 100,000 persons, by State: 1900–55*

	1955	1950	1940	1930	1920	1910	1900
NORTHEAST							
Mid-Atlantic:							
District of Columbia	76	60	75	106	98	86	86
Delaware	32	36	39	43	38	39	36
Maryland	34	43	48	50	49	42	36
New Jersey	58	64	65	59	52	39	34
New York	74	83	76	78	74	54	46
Pennsylvania	52	54	60	61	49	44	44
West Virginia	30	31	31	39	37	30	26
New England:							
Connecticut	64	68	63	59	60	53	49
Maine	37	40	45	53	60	50	46
Massachusetts	60	64	65	81	82	62	55
New Hampshire	44	40	46	50	55	44	49
Rhode Island	54	52	53	55	53	49	44
Vermont	38	38	42	43	47	44	43
NORTH CENTRAL							
Great Lakes:							
Illinois	56	65	76	78	69	56	54
Indiana	40	44	53	58	51	45	43
Michigan	41	45	51	52	49	46	39
Minnesota	60	69	74	77	66	43	33
Ohio	41	47	55	59	52	49	46
Wisconsin	56	64	67	73	61	49	43
Midwest:							
Iowa	51	55	64	69	66	54	49
Kansas	39	49	56	57	58	50	38
Missouri	47	53	61	68	63	48	40
Nebraska	55	61	70	71	64	50	41
North Dakota	37	40	41	46	41	34	24
South Dakota	36	44	47	50	47	39	29
SOUTH							
Lower Southeast:							
Alabama	22	20	21	24	26	25	23
Arkansas	23	22	20	21	20	17	16
Florida	39	36	38	47	45	35	30
Georgia	23	25	26	32	33	27	24
Louisiana	31	34	33	37	34	28	23
Mississippi	22	21	19	22	22	20	17
South Carolina	16	18	19	22	22	18	16
Upper Southeast:							
Kentucky	29	27	28	33	32	31	27
North Carolina	23	24	22	25	23	17	15
Tennessee	32	28	29	31	31	27	24
Virginia	29	30	32	32	29	23	19
WEST							
Far West:							
California	55	60	79	97	95	88	94
Nevada	40	50	50	70	80	78	76
Oregon	60	62	77	93	98	78	71
Washington	56	58	73	87	79	60	52
Rocky Mountain:							
Colorado	47	51	59	73	72	62	56
Idaho	39	37	41	54	59	56	52
Montana	45	47	50	54	56	41	47
Utah	50	54	56	64	66	51	44
Wyoming	42	38	49	48	55	37	36
Southwest:							
Arizona	29	29	31	34	37	32	37
New Mexico	24	24	21	24	23	21	16
Oklahoma	32	32	32	34	32	31	23
Texas	29	31	31	34	31	28	25

51. Data reproduced below were compiled by Division of Dental Resources, United States Public Health Service.

TABLE 51.—*Percent distribution of dentists and population, by region and type of county, 1955* [1]

PERCENT OF DENTISTS

Region	Total	Metropolitan counties	Nonmetropolitan counties	Nonmetropolitan counties		
				Total	Rural trade area counties	Other
United States	100.0	71.0	29.0	100.0	53.0	47.0
Northeast	100.0	84.2	15.8	100.0	58.1	41.9
North Central	100.0	64.1	35.9	100.0	48.3	51.7
South	100.0	49.4	50.6	100.0	47.1	52.9
West	100.0	70.2	29.8	100.0	62.9	37.1

PERCENT OF POPULATION

United States	100.0	58.3	41.7	100.0	56.0	44.0
Northeast	100.0	77.2	22.8	100.0	51.9	48.1
North Central	100.0	55.8	44.2	100.0	44.1	55.9
South	100.0	34.1	65.9	100.0	35.3	64.7
West	100.0	59.1	40.9	100.0	52.9	47.1

[1] Metropolitan counties are counties within standard metropolitan areas as defined by the Bureau of the Census. Rural trade area counties are nonmetropolitan counties which include a central city of 10,000 population or more in 1950.

52. Division of Dental Resources, United States Public Health Service. Information furnished in response to staff inquiry.

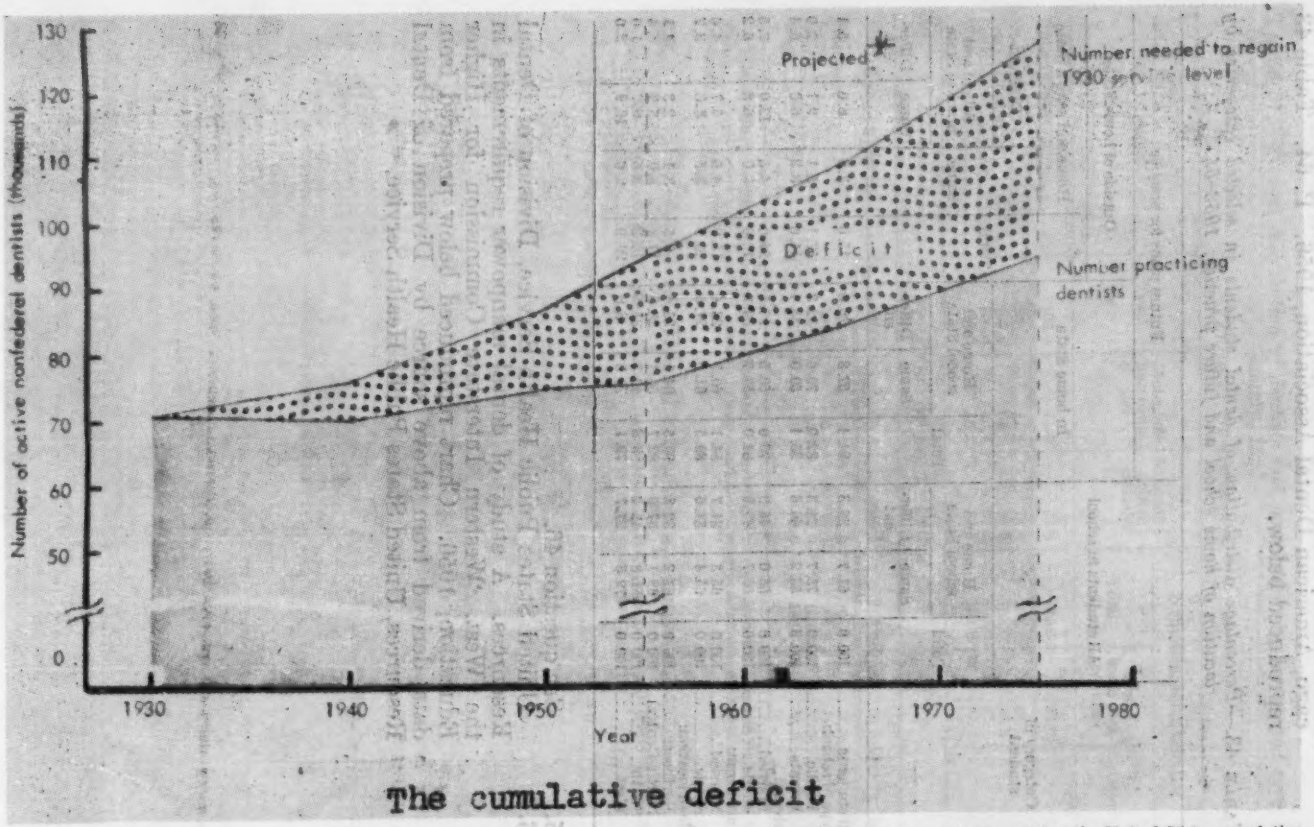
53, 54. American Dental Association, Council on Dental Education. How students finance their dental education. Chicago, American Dental Association, 1956. P. 64. Table 43 reproduced below.

TABLE 43.—*Percentage distribution of dental students in selected categories by location of home school and future practice: 1953–54*

Category of student	All students in school			Future plans for practice						
				In home State			Outside of home State			
							Total	Home and school State		
								Same	Different	
	Total	Home and school State		Total	Home and school State				School and practice State	
		Same	Different		Same	Different			Same	Different
All students	100.0	61.7	38.3	84.4	57.8	26.6	15.6	3.9	6.6	5.1
Type of school:										
Public	100.0	75.7	24.3	82.9	70.6	12.3	17.1	5.1	9.1	2.9
Private	100.0	53.2	46.8	85.4	50.0	35.4	14.6	3.2	5.0	6.4
Veteran:										
Married	100.0	55.0	45.0	76.0	50.5	25.5	24.0	4.5	12.0	7.5
Single	100.0	56.7	43.3	84.0	53.7	30.3	16.0	3.0	6.8	6.2
Nonveteran:										
Married	100.0	65.3	34.7	84.1	60.7	23.4	15.9	4.6	6.7	4.6
Single	100.0	65.4	34.6	89.5	61.9	27.6	10.5	3.5	3.3	3.7
School location:										
Northeast	100.0	67.2	32.8	90.5	64.1	26.4	9.5	3.1	2.3	4.1
North Central	100.0	62.1	37.9	82.7	56.1	26.6	17.3	6.0	5.9	5.4
South	100.0	51.8	48.2	83.8	49.3	34.5	16.2	2.5	6.7	7.0
West	100.0	72.3	27.7	79.1	70.3	8.8	20.9	2.0	16.9	2.0

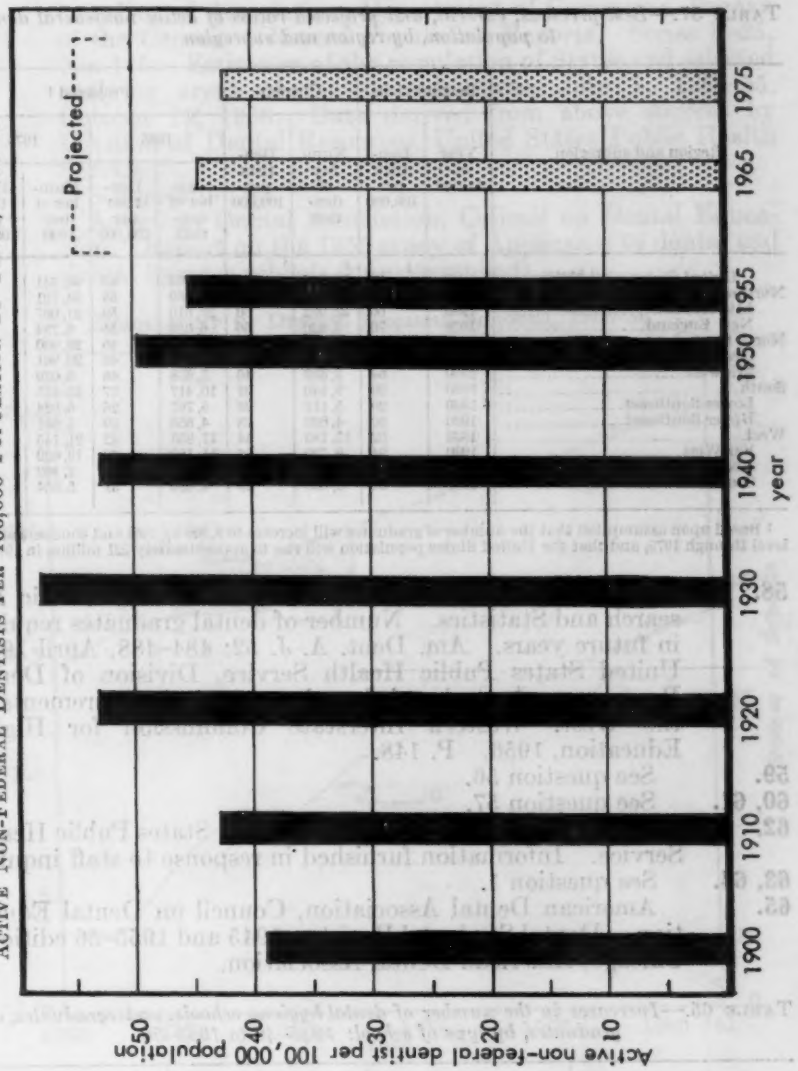
55. See question 46.

56. United States Public Health Service, Division of Dental Resources. A study of dental manpower requirements in the West. Western Interstate Commission for Higher Education, 1956. Chart reproduced below prepared from data derived from above source by Division of Dental Resources, United States Public Health Service.



The cumulative deficit

*Based upon assumption that the number of graduates will increase to 3,360 by 1961 and continue at that level through 1975, and that the United States population will rise to approximately 221 million in 1975.



*Based upon assumption that the number of graduates will increase to 3,360 by 1961 and continue at that level through 1975, and that the United States population will rise to approximately 221 million in 1975.

57. The projections reproduced below were prepared by the Division of Dental Resources, United States Public Health Service. See also questions 46 and 56.

TABLE 57.—*Best previous, current, and projected ratios of active nonfederal dentists to population, by region and subregion*

Region and subregion	Best previous		Current		Projected [1]			
					1965		1975	
	Year attained	Dentists per 100,000	Number of dentists	Dentists per 100,000	Number of dentists	Dentists per 100,000	Number of dentists	Dentists per 100,000
United States	1930	58	75,757	46	84,093	45	94,341	43
Northeast	1930	67	28,372	59	31,069	58	33,791	55
Mid-Atlantic	1930	66	22,952	60	25,010	59	27,007	56
New England	1920	70	5,420	56	6,059	55	6,784	53
North Central	1930	65	23,062	48	24,754	46	26,930	43
Great Lakes	1930	66	17,669	48	19,176	46	20,901	43
Midwest	1930	64	5,393	46	5,578	46	6,029	45
South	1930	29	9,140	27	10,417	27	12,475	29
Lower Southeast	1930	29	5,117	26	5,767	26	6,834	27
Upper Southeast	1930	30	4,023	28	4,650	29	5,641	32
West	1930	62	15,183	44	17,853	42	21,145	39
Far West	1930	94	9,720	56	11,180	48	13,029	43
Rocky Mountains	1920	64	1,773	46	2,057	46	2,462	43
Southwest	1930	34	3,690	29	4,616	31	5,654	31

[1] Based upon assumption that the number of graduates will increase to 3,360 by 1961 and continue at that level through 1975, and that the United States population will rise to approximately 221 million in 1975.

58. American Dental Association, Bureau of Economic Research and Statistics. Number of dental graduates required in future years. Am. Dent. A. J. 52: 484–488, April 1956; United States Public Health Service, Division of Dental Resources. A study of dental manpower requirements in the West. Western Interstate Commission for Higher Education, 1956. P. 148.

59. See question 56.

60, 61. See question 57.

62. Division of Dental Resources, United States Public Health Service. Information furnished in response to staff inquiry.

63, 64. See question 1.

65. American Dental Association, Council on Dental Education. Dental Students' Register, 1945 and 1955–56 editions, Chicago, American Dental Association.

TABLE 65.—*Increases in the number of dental hygiene schools, undergraduates, and graduates, by type of school: 1945–46 to 1955–56*

	1955–56			1945–46			Net change		
	All schools	Public schools	Private schools	All schools	Public schools	Private schools	All schools	Public schools	Private schools
Number of schools	34	19	15	16	6	10	18	13	5
Undergraduate students	2,009	1,094	915	678	231	447	1,331	863	468
Graduates	857	469	388	329	41	288	528	428	100

66. See question 1.

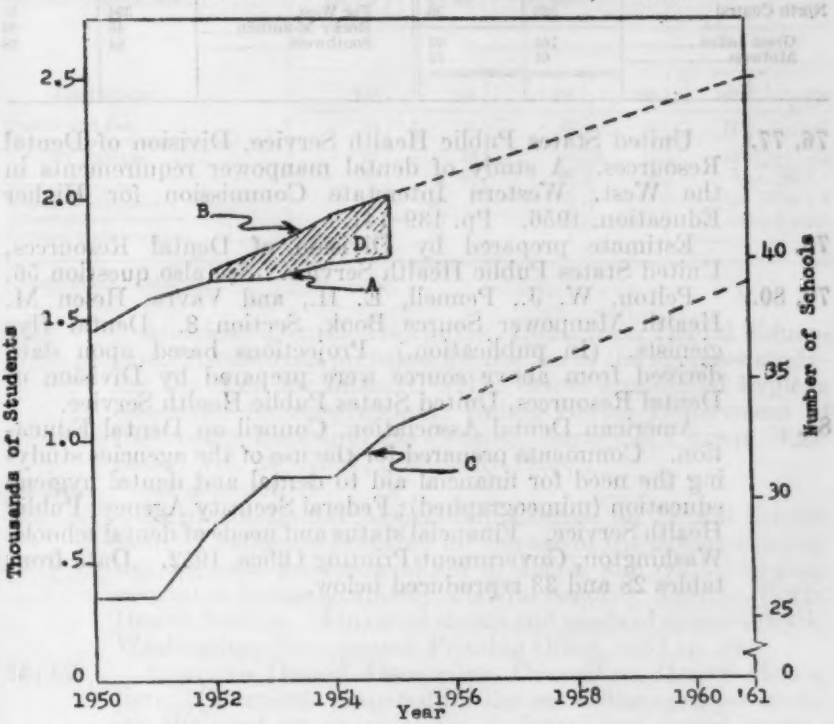
67, 68. See question 65.

69. American Dental Association, Council on Dental Education. Dental Students' Register, 1955–56. Chicago, American Dental Association; Department of Commerce, Bureau of the Census. Current Population Reports. Series P–25, No. 145. Estimates of the population of States and selected outlying areas of the United States: July 1, 1950–55. October 19, 1956. Data derived from above sources by Division of Dental Resources, United States Public Health Service.

70. See question 65.

71. American Dental Association, Council on Dental Education. Report on the 1955 study of Applicants to dental and dental hygiene schools (mimeographed).

ENROLLMENT IN DENTAL HYGIENE SCHOOLS, 1950–56



LEGEND

A=Enrollment in schools in operation in 1950.
B=Enrollment in all schools (including new schools opened since 1950).
C=Number of schools in operation.
D=Increment in enrollment due to new schools (shown by area between curves A and B).

72. Council on Dental Education, American Dental Association. Information furnished in response to staff inquiry.

73–75. Pelton, W. J., Pennell, E. H., and Vavra, Helen M. Health Manpower Source Book, Section 8. Dental Hygienists. (In publication.) Data reproduced below derived from above sources by Division of Dental Resources, United States Public Health Service.

TABLE 73.—*Number of active dental hygienists, by region and subregion: 1955*

Region and subregion	Active dental hygienists	Per 1,000 active dentists	Region and subregion	Active dental hygienists	Per 1,000 active dentists
United States	3,959	52	South	357	39
Northeast	2,253	79	Lower Southeast	255	50
Mid-Atlantic	1,528	67	Upper Southeast	102	25
New England	725	134	West	524	35
North Central	825	36	Far West	394	41
Great Lakes	761	43	Rocky Mountain	46	26
Midwest	64	12	Southwest	84	23

76, 77. United States Public Health Service, Division of Dental Resources. A study of dental manpower requirements in the West. Western Interstate Commission for Higher Education, 1956. Pp. 139–141.

78. Estimate prepared by Division of Dental Resources, United States Public Health Service. See also question 56.

79, 80. Pelton, W. J., Pennell, E. H., and Vavra, Helen M. Health Manpower Source Book, Section 8. Dental Hygienists. (In publication.) Projections based upon data derived from above source were prepared by Division of Dental Resources, United States Public Health Service.

81. American Dental Association, Council on Dental Education. Comments prepared for the use of the agencies studying the need for financial aid to dental and dental hygiene education (mimeographed); Federal Security Agency, Public Health Service. Financial status and needs of dental schools. Washington, Government Printing Office, 1952. Data from tables 28 and 33 reproduced below.

TABLE 81.—*Basic operating income of dental and dental hygiene schools, by source of income: Fiscal year 1949–50*

	Dental schools			Dental hygiene schools		
	All schools	Public	Private	All schools	Affiliated	Nonaffiliated
Number of schools	40	15	25	18	12	6
	Amount					
SOURCE OF INCOME						
Total income	$15,667,434	$6,228,879	$9,438,555	$600,694	$346,349	$254,345
Tuition and fees	5,422,973	1,369,775	4,053,198	269,741	176,845	92,896
State-city appropriations and university transfers	5,437,610	3,469,429	1,968,181	312,902	153,966	158,936
Clinics	3,958,572	1,282,177	2,676,395	16,554	15,538	1,016
Gifts and grants	281,921	66,454	215,467	1,497		1,497
Endowment income	249,947	9,758	240,189			
Miscellaneous transfers	182,286	14,786	167,500			
Regional organizations	134,125	16,500	117,625			
	Percent distribution					
Total income	100	100	100	100	100	100
Tuition and fees	35	22	43	45	51	37
State-city appropriations and university transfers	35	56	21	52	44	62
Clinics	25	21	28	3	5	(1)
Gifts and grants	2	1	2	(1)		1
Endowment income	1	(1)	3			
Miscellaneous transfers	1	(1)	2			
Regional organizations	1	(1)	1			

[1] Less than 0.5 percent.

82. American Dental Association, Council on Dental Education. Comments prepared for the use of the agencies studying the need for financial aid to dental and dental hygiene education (mimeographed); United States Department of Commerce, Bureau of the Census. Survey of Current Business. Vol. 36, No. 7, p. 21, July 1956.

83–86. See question 81.

87. American Dental Association, Council on Dental Education. Comments prepared for the use of the agencies studying the need for financial aid to dental and dental hygiene education (mimeographed); Federal Security Agency, Public Health Service. Financial status and needs of dental schools. Washington, Government Printing Office, 1952 (p. 58).

88, 89. American Dental Association, Council on Dental Education. Comments prepared for the use of the agencies studying the need for financial aid to dental and dental hygiene education (mimeographed).

90. See question 81.

91. American Dental Association, Council on Dental Education. Comments prepared for the use of the agencies studying the need for financial aid to dental and dental hygiene education (mimeographed).

92. American Dental Association, Council on Dental Education. Comments prepared for the use of the agencies studying the need for financial aid to dental and dental hygiene education (mimeographed); Federal Security Agency, Public Health Service. Financial status and needs of dental schools. Washington, Government Printing Office, 1952. Data derived from above sources by Division of Dental Resources, United States Public Health Service.

93. Federal Security Agency, Public Health Service. Financial status and needs of dental schools. Washington, Government Printing Office, 1952. p. 51. Data reproduced below.

TABLE 93.—*Median expense per student, by expense item, for selected categories of dental school: Fiscal year 1949–50*

Category of school	Total basic operating expense	Instruction	Administration and General	Plant operation and maintenance	Libraries
All schools	$1,316	$890	$197	$165	$24
Form of school control:					
Public	1,469	1,083	192	143	33
Private	1,147	824	215	168	22
Size of school:					
Small (less than 225 students)	1,469	1,060	254	140	32
Medium (225 to 348 students)	1,252	946	196	170	23
Large (more than 348 students)	1,170	824	156	165	18

94. Federal Security Agency, Public Health Service. Financial status and needs of dental schools. Washington, Government Printing Office, 1952.

95. National Institute of Dental Research, Extramural Programs Branch. Information furnished in response to staff inquiry.

96. Division of Dental Resources, United States Public Health Service. Information furnished in response to staff inquiry. See also question 1.

97. See question 4.

98–103. The progress and potentials of the Western Interstate Commission for Higher Education. November 1954; The Southern Regional Education Program. Atlanta, Southern Regional Education Board, February 1956; American Dental Association, Council on Dental Education. Comments prepared for the use of the agencies studying the need for financial aid to dental and dental hygiene education (mimeographed); Western Interstate Commission for Higher Education broadens exchange program to cover dental hygienists. Higher Education in the West, No. 3, January 1957.

104. New York University received $500,000 for dental research. Am. Dent. A. J. 49:106. July 1954; W. K. Kellogg Foundation. The First Twenty-Five Years. The study of a foundation. Battle Creek, W. K. Kellogg, pp. 149, 208–209; W. K. Kellogg Foundation. Annual Report. Battle Creek, W. K. Kellogg. 1951–52, pp. 54, 60; and 1955–56, p. 224. Data reproduced below from latter two sources.

TABLE 104.—*W. K. Kellogg Foundation expenditures: 1930–55*

Year	Agriculture	Dentistry	General education	Hospitals	Libraries	Medicine	Nursing	Public health	Welfare	General	Total
1930–31	(1)	$210	$11,710	$300	$766	$7,502	$926	$2,380	$825	$1,327	$26,036
1931–32	(1)	3,108	341,036	200	965	16,939	3,472	21,126	17,809	3,491	408,146
1932–33	(1)	8,945	371,061	2,643	1,523	32,387	3,497	49,018	48,750	38,212	556,036
1933–34	(1)	13,577	43,124	810	1,530	36,352	3,942	84,534	49,098	74,358	307,325
1934–35	(1)	26,087	57,229	546	1,926	45,629	2,285	132,783	50,662	36,039	353,186
1935–36	(1)	31,407	215,704	10,007	4,244	59,024	2,274	174,953	68,475	75,632	641,720
1936–37	(1)	65,148	227,533	16,974	20,511	97,658	3,660	260,450	102,150	72,625	856,709
1937–38	(1)	83,635	278,710	54,182	13,369	106,504	3,582	264,325	121,214	64,407	989,928
1938–39	(1)	329,525	571,661	380,586	5,857	75,270	1,970	328,929	112,352	64,346	1,870,496
1939–40	(1)	99,075	333,142	141,964	11,546	79,979	8,751	294,111	123,906	118,770	1,311,244
1940–41	(1)	91,126	538,807	236,038	122,264	163,085	21,331	781,137	102,716	107,358	2,163,862
1941–42	(1)	640,472	933,375	159,840	314,391	994,546	358,765	410,890	88,816	147,926	4,049,021
1942–43	(1)	286,192	139,131	199,792	3,460	428,381	103,013	389,770	54,020	70,039	1,623,798
1943–44	(1)	64,141	476,893	141,255	5,907	141,428	103,590	314,811	53,120	36,225	1,337,370
1944–45	(1)	49,153	418,881	127,142	41,492	376,465	136,013	397,111	69,020	37,611	1,652,888
1945–46	(1)	155,258	402,183	163,753	39,280	416,180	317,528	210,175	69,020	28,665	1,802,042
1946–47	(1)	151,298	436,913	147,772	30,271	407,754	304,683	343,612	18,420	18,976	1,859,699
1947–48	(1)	119,550	572,934	139,176	22,942	342,338	331,065	281,110	3,420	3,286	1,815,821
1948–49	(1)	103,262	865,340	280,583	13,149	314,118	266,179	269,413	12,620	2,618	2,127,262
1949–50	(1)	117,222	2,362,970	158,351	5,191	342,625	266,357	363,901	3,200	20,000	3,629,817
1950–51	(1)	154,026	1,155,639	271,126	45	295,999	623,509	275,432	7,668	----------	2,783,444
1951–52	(1)	174,683	1,155,616	520,292	----------	371,848	644,329	339,545	24,049	----------	3,230,362
1952–53	$235,953	95,243	951,972	319,909	----------	733,944	661,136	544,456	----------	72,191	3,614,804
1953–54	426,109	116,833	1,745,786	232,065	----------	535,881	471,641	261,726	----------	21,684	3,811,725
1954–55	592,692	76,535	2,181,465	335,083	----------	443,478	372,390	377,903	----------	19,993	4,399,539
1955–56	797,402	272,181	1,700,796	384,530	----------	488,432	293,807	333,266	----------	482,468	4,752,882
Total	2,052,156	3,327,892	18,479,611	4,424,809	660,629	7,353,836	5,309,695	7,446,867	1,201,330	1,618,247	51,875,162

[1] Division of Agriculture established in 1952–53.

105, 106. National Institute of Dental Research, Extramural Programs Branch. Information furnished in response to staff inquiry.

107. Public Health Service, Division of Hospital and Medical Facilities. Information furnished in response to staff inquiry.

108. Housing and Home Finance Agency, Community Facilities Administration. Information furnished in response to staff inquiry.

109. See question 32.

110, 111. American Dental Association, Council on Dental Education. How Students Finance Their Dental Education. Chicago, American Dental Association 1956, pp. 25, 27, 36. Data reproduced below. Also Hollis, Ernest V., Cost of Attending College (in process of being printed by Office of Education).

Average 4-year expenditures reported by selected categories of dental students, by type of school: 1953–54

Category of student and type of school	Number of students	Total expenditures	Living expenses	School expenses	Items of school expenses			
					Tuition and fees	Supplies and equipment	Books	Other
All students	9,521	$11,814	$7,349	$4,465	$2,522	$1,392	$301	$250
Single—at home	1,531	8,295	3,598	4,697	2,712	1,432	289	264
Single—away from home	3,825	10,341	5,913	4,428	2,527	1,335	305	261
Married	4,165	14,452	10,042	4,410	2,452	1,425	301	232
Private	6,777	12,037	7,257	4,780	2,775	1,445	309	251
Single—at home	1,326	8,426	3,564	4,862	2,860	1,450	289	263
Single—away from home	2,680	10,814	6,060	4,754	2,790	1,385	318	261
Married	2,771	14,923	10,162	4,761	2,721	1,498	308	234
Public	2,744	11,262	7,580	3,681	1,897	1,260	279	245
Single—at home	205	7,445	3,815	3,633	1,756	1,323	280	274
Single—away from home	1,145	9,237	5,577	3,660	1,914	1,217	271	258
Married	1,394	13,510	9,798	3,712	1,917	1,278	288	229

112. American Dental Association, Council on Dental Education. How Students Finance Their Dental Education. Chicago, American Dental Association, 1956, p. 52. Table 34 reproduced below.

Distribution of average 4-year expenditures by student category and source of funds: 1953–54

Student category	Number of students	Source of funds									
		Total	Parents	Savings	Own earnings	Wife's earnings	Veterans benefits	Scholarships	School loans	Other loans	Other
		Amount									
Married—											
With children	2,021	$14,631	$3,027	$2,551	$2,252	$3,645	$1,796	$120	$110	$705	$425
Without children	2,144	14,281	2,118	1,843	1,274	7,546	825	108	54	209	244
Single students—											
Away from home	3,825	10,341	6,094	1,941	1,073	-------	295	145	64	465	264
At home	1,531	8,295	4,304	1,933	1,183	-------	201	178	25	223	248
		Percent									
Married students—											
With children	2,021	100.0	20.7	17.4	15.4	24.9	12.3	0.8	0.8	4.8	2.9
Without children	2,144	100.0	14.8	12.9	8.9	52.8	5.8	.8	.4	1.9	1.7
Single students—											
Away from home	3,825	100.0	58.9	18.8	10.4	-------	2.8	1.4	.6	4.5	2.6
At home	1,531	100.0	51.9	23.3	14.3	-------	2.4	2.1	.3	2.7	3.0

113. American Dental Association, Council on Dental Education. Dental Students' Register, 1955–56 Chicago, American Dental Association; American Dental Association, Council on Dental Education. How Students Finance Their Dental Education. Chicago, American Dental Association, 1956. Data derived from above sources by Division of Dental Resources, United States Public Health Service.

114, 115. American Dental Association, Council on Dental Education. How students finance their dental education. Chicago, American Dental Association, 1956, p. 78. Table 60 reproduced below.

Average 2-year expenditures of dental hygiene students, by student category and by type of school: 1953–54

Category of student and type of school	Total	Type of expense	
		School	Living
All students	$3,039	$977	$2,062
Private	3,656	1,268	2,388
Public	2,529	736	1,793
Students away from home	3,586	1,023	2,563
Private	4,169	1,257	2,912
Public	3,038	802	2,236
Students at home	2,151	904	1,247
Private	2,659	1,291	1,368
Public	1,812	642	1,170

116. American Dental Association, Council on Dental Education. How students finance their dental education. Chicago, American Dental Association, 1956, p. 81. Table 64 reproduced below.

Sources of funds of dental hygiene students, by student category and by type of school: 1953–54

Category of student and type of school	Total	Sources of funds					
		Parents	Savings	Earnings	Husbands' earnings	Scholarships and loans	Other
	Average 2-year amount						
All students	$3,039	$2,063	$463	$157	$113	$126	$117
Private	3,656	2,584	509	139	131	165	128
Public	2,529	1,628	425	173	98	97	108
Students:							
Away from home	3,586	2,539	494	110	148	178	117
Private	4,169	3,022	495	105	198	202	147
Public	3,038	2,085	493	116	101	155	88
At home	2,151	1,288	412	231	56	46	118
Private	2,659	1,731	535	204	4	95	90
Public	1,812	987	330	252	93	13	137

117. School of Dentistry, scholarships. University of Alabama Bulletin, School of Dentistry 49:14 August 1, 1955; Feingold, S. N., Scholarships, fellowships and loans, Volume II. Boston, Bellman, 1951, pp. 182–183, 189–190. State of Florida provides 10 dental scholarships. Am. Dent. A. J. 53:102, July 1956; School of Dentistry, State Scholarship Fund. Bulletin, Medical College of Virginia. 53:76, April 1956.

118. Data compiled from the dental school catalogs for 1955–56 by the Division of Dental Resources, United States Public Health Service.

119–123. National Institute of Dental Research, Extramural Programs Branch and Department of Defense (Admiral Malone). Information furnished in response to staff inquiry. American Dental Association, Council on Dental Education. How students finance their dental education. Chicago, American Dental Association, 1956.

124–127. American Dental Association, Council on Dental Education. Comments prepared for the use of the agencies studying the need for financial aid to dental and dental hygiene education (mimeographed).

APPENDIX—PART THREE
OSTEOPATHIC COLLEGES

84939—57——30

84, 85. APPENDIX—OSTEOPATHIC COLLEGES

Osteopathic colleges—Planned facilities, 1957–62

	Cost of planned facilities	Percentage of cost chargeable to education	Amount chargeable to education
Chicago College of Osteopathy	$1,000,000	66⅔	$666,666
College of Osteopathic Physicians and Surgeons, Los Angeles	1,000,000	60	600,000
Des Moines Still College of Osteopathy and Surgery	1,925,000	75	1,443,750
Kansas City College of Osteopathy and Surgery	3,550,000	80	2,840,000
Kirksville College of Osteopathy and Surgery	3,600,000	70	2,520,000
Philadelphia College of Osteopathy	10,000,000	65	6,500,000
Total	21,075,000		14,570,416

Source: Replies to questionnaires submitted to osteopathic colleges by American Association of Osteopathic Colleges.

APPENDIX—PART FOUR

SCHOOLS OF PUBLIC HEALTH

APPENDIX—PART FOUR

SCHOOLS OF PUBLIC HEALTH

APPENDIX

SCHOOLS OF PUBLIC HEALTH

The numbers in the appendix correspond to the numbers of the questions in the report. The purpose of the appendix is to give the sources of the information set forth in the questions, and to make available supplementary information.

1–4. Information from the schools of public health.

Perrott, G. St. J., and Gooch, Marjorie. Education in Public Health. *In* Education for the Professions. Edited by Lloyd E. Blauch. United States Government Printing Office, Washington, 1955.

Smillie, Wilson G. Summary Report on Accredited Schools of Public Health, 1955–56. American Public Health Association, Committee on Professional Education.

Catalogs of schools of public health.

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5. General information.

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6. Special survey of schools of public health made by the Association of Schools of Public Health, February 1957. Data reproduced below compiled by Division of Public Health Methods, Public Health Service.

Schools of public health—enrollment, 1956–57, and degrees granted, 1956

School	1956–57 enrollment		Degrees granted, 1956		
	Graduate and special	Undergraduate	Doctoral[1]	Masters[2]	Bachelors
Total	1,159	536	28	570	118
California	116	126	0	87	40
Columbia	123	0	1	55	0
Harvard	136	0	6	70	0
Johns Hopkins	125	0	12	50	0
Michigan	154	104	1	77	23
Minnesota	155	212	1	58	49
North Carolina	109	39	2	63	6
Pittsburgh	79	0	2	27	0
Puerto Rico	60	55	0	26	0
Tulane	53	0	3	25	0
Yale	49	0	0	32	0

[1] Includes Dr. P. H., Ph. D., Sc. D., and other doctoral degrees.
[2] Includes M. P. H., M. S., and other masters' degrees.

7. Smillie, Wilson G. Summary Report on Accredited Schools of Public Health, 1955–56. American Public Health Association, Committee on Professional Education.

Smillie, Wilson G. Summary Report on Accredited Schools of Public Health, 1954–55. American Public Health Association, Committee on Professional Education.

Summary Report on Accredited Schools of Public Health, 1952–53. American Public Health Association, Committee on Professional Education.

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Rosenfeld, Leonard S., Gooch, Marjorie, and Levine, Oscar. Report on Schools of Public Health in the United States. Public Health Service Publication No. 276. United States Government Printing Office, Washington, 1953.

Special survey of schools of public health made by the Association of Schools of Public Health, February 1957. Data reproduced below compiled by Division of Public Health Methods, Public Health Service.

Trend in enrollment, schools of public health, 1949–57

Year	Enrollment		Year	Enrollment	
	Graduate and special	Undergraduate		Graduate and special	Undergraduate
1949–50	713	395	1953–54	1,014	(1)
1950–51	823	(1)	1954–55	1,069	(1)
1951–52	909	(1)	1955–56	1,028	438
1952–53	908	(1)	1956–57	1,159	536

[1] Not available.

8. Special survey of schools of public health made by the Association of Schools of Public Health, February 1957. Data reproduced below compiled by Division of Public Health Methods, Public Health Service.

Expected enrollment in each school of public health, 1959–60

School	Graduate and special students	Undergraduate students
California	125–150	175–200
Columbia	106–118	
Harvard	98	
Johns Hopkins	150	
Michigan	250	50
Minnesota	232	318
North Carolina	100	30
Pittsburgh	125	
Puerto Rico	40	60
Tulane	53	
Yale	50	

9. Catalogs of schools of public health.

Special survey of schools of public health made by the Association of Schools of Public Health, February 1957. Data reproduced below compiled by Division of Public Health Methods, Public Health Service.

Graduate and special students in schools of public health, by place of employment, 1956–57

School and location	Place of employment [1]				
	Total	Same State or Territory	Other State or Territory	Foreign country	Not reported
All schools	1,159	354	423	292	90
Total, publicly supported schools	594	209	225	130	30
California	116	61	29	22	4
Michigan	154	41	68	27	18
Minnesota	155	52	70	30	3
North Carolina	109	22	58	24	5
Puerto Rico	60	33	0	27	0
Total, privately supported schools	565	145	198	162	60
Columbia, New York	123	38	35	17	33
Harvard, Massachusetts	136	35	45	56	0
Johns Hopkins, Maryland	125	26	52	41	6
Pittsburgh, Pennsylvania	79	26	32	15	6
Tulane, Louisiana	53	7	19	19	8
Yale, Connecticut	49	13	15	14	7

[1] For those still employed, this is current place of employment; for those not still employed, it is place of last employment.

10. Special survey of schools of public health made by the Association of Schools of Public Health, February 1957. Data reproduced below compiled by the Division of Public Health Methods, Public Health Service.

Professional background of students, schools of public health, 1956–57

Professional background	Number	Percent
Graduate and special students	1,159	100
Physicians	285	27
Hospital administrators	109	10
Nurses	123	11
Sanitation personnel	141	13
Health educators	73	7
All other	337	32
Not reported	91	------
Undergraduate students	536	100
Hospital administrators	15	3
Nurses	353	71
Sanitation personnel	34	7
Health educators	18	4
All other	76	15
Not reported	40	------

Professional background of students in each school of public health, 1956–57

Professional background	California	Columbia	Harvard	Johns Hopkins	Michigan	Minnesota	North Carolina	Pittsburgh	Puerto Rico	Tulane	Yale
Graduate and special students: Total	116	123	136	125	154	155	109	79	60	53	49
Physicians	22	28	70	51	14	12	18	22	16	19	13
Hospital administrators	12	31	0	0	0	49	0	5	0	0	12
Nurses	4	4	20	9	29	34	12	6	0	1	4
Sanitation personnel	25	3	8	3	24	27	28	8	8	5	2
Health educators	23	6	1	0	21	9	9	0	0	0	4
All other	30	21	37	25	50	23	42	32	36	28	13
Not specified	0	30	0	37	16	1	0	6	0	0	1
Undergraduate students: Total	126	0	0	0	104	212	39	0	55	0	0
Hospital administrators	15	0	0	0	0	0	0	0	0	0	0
Nurses	0	0	0	0	58	212	30	0	53	0	0
Sanitation personnel	33	0	0	0	1	0	0	0	0	0	0
Health educators	9	0	0	0	0	0	9	0	0	0	0
All other	69	0	0	0	7	0	0	0	0	0	0
Not specified	0	0	0	0	38	0	0	0	2	0	0

11. Special survey of schools of public health made by the Association of Schools of Public Health, February 1957. Data reproduced below compiled by Division of Public Health Methods, Public Health Service.

State or Territory of employment of graduate and special students in each school of public health, 1956–57

State or Territory of employment [1]	Total	California	Columbia	Harvard	Johns Hopkins	Michigan	Minnesota	North Carolina	Pittsburgh	Puerto Rico	Tulane	Yale
Continental United States	725	88	69	77	77	106	120	78	57	0	26	27
Alabama	6	0	0	0	0	1	1	2	1	0	1	0
Arizona	3	2	0	0	0	0	1	0	0	0	0	0
Arkansas	3	0	0	0	0	1	0	2	0	0	0	0
California	78	61	1	2	5	1	5	1	1	0	0	1
Colorado	13	2	3	2	0	2	1	0	3	0	0	0
Connecticut	23	0	1	4	1	1	1	1	1	0	0	13
Delaware	1	0	0	0	1	0	0	0	0	0	0	0
District of Columbia	28	1	1	3	15	3	1	2	2	0	0	0
Florida	14	0	1	0	3	2	2	1	0	0	5	0
Georgia	14	1	1	0	2	1	0	9	0	0	0	0
Idaho	5	3	0	0	0	0	0	2	0	0	0	0
Illinois	15	0	0	1	1	8	1	1	0	0	2	1
Indiana	9	1	0	0	1	0	1	2	3	0	1	0
Iowa	3	0	0	0	0	0	3	0	0	0	0	0
Kansas	6	0	0	0	0	1	5	0	0	0	0	0
Kentucky	10	0	1	1	1	3	0	4	0	0	0	0
Louisiana	10	0	0	0	0	0	1	2	0	0	7	0
Maine	1	0	0	1	0	0	0	0	0	0	0	0
Maryland	37	0	1	2	26	0	1	3	3	0	0	1
Massachusetts	50	1	5	35	0	5	1	0	2	0	0	1
Michigan	49	0	0	4	0	41	2	2	0	0	0	0
Minnesota	58	1	1	0	1	0	52	1	1	0	1	0
Mississippi	4	0	0	0	1	0	0	1	0	0	2	0
Missouri	10	0	1	1	0	4	3	0	0	0	1	0
Montana	2	0	0	0	0	0	0	0	2	0	0	0
Nebraska	8	0	0	0	0	1	6	0	0	0	1	0
Nevada	1	1	0	0	0	0	0	0	0	0	0	0
New Hampshire	2	0	1	0	0	0	1	0	0	0	0	0
New Jersey	11	0	7	2	2	0	0	0	0	0	0	0
New Mexico	7	3	1	0	0	2	1	0	0	0	0	0
New York	68	1	38	8	4	5	1	2	3	0	0	6
North Carolina	27	0	0	2	0	1	1	22	0	0	0	1
North Dakota	3	0	0	0	0	0	3	0	0	0	0	0
Ohio	23	1	0	0	2	8	3	4	3	0	1	1
Oklahoma	2	0	0	0	0	1	0	1	0	0	0	0
Oregon	6	1	0	0	1	1	3	0	0	0	0	0
Pennsylvania	47	1	4	1	5	3	3	3	26	0	0	1
Rhode Island	1	0	0	0	1	0	0	0	0	0	0	0
South Carolina	5	0	0	1	0	0	1	2	1	0	0	0
South Dakota	1	0	0	0	0	0	1	0	0	0	0	0
Tennessee	9	2	0	1	0	4	0	2	0	0	0	0
Texas	14	1	1	0	2	1	3	0	1	0	4	1
Utah	10	2	0	2	1	0	5	0	0	0	0	0
Vermont	1	0	0	0	0	0	0	0	1	0	0	0
Virginia	9	0	0	4	0	1	1	3	0	0	0	0
Washington	7	2	0	0	0	2	1	2	0	0	0	0
West Virginia	3	0	0	0	1	0	0	1	1	0	0	0
Wisconsin	8	0	0	0	0	2	4	0	2	0	0	0
Wyoming	0	0	0	0	0	0	0	0	0	0	0	0
Territories and possessions	52	2	4	3	1	3	2	2	1	33	0	1
Alaska	3	0	0	0	1	0	2	0	0	0	0	0
Canal Zone	1	0	0	0	0	1	0	0	0	0	0	0
Guam	3	1	0	2	0	0	0	0	0	0	0	0
Hawaii	4	1	0	1	0	2	0	0	0	0	0	0
Puerto Rico	41	0	4	0	0	0	0	2	1	33	0	1

[1] For those still employed, this is current place of employment; for those not still employed, it is place of last employment.

Foreign country of employment of graduate and special students in each school of public health, 1956–57

Country of employment [1]	Total	California	Columbia	Harvard	Johns Hopkins	Michigan	Minnesota	North Carolina	Pittsburgh	Puerto Rico	Tulane	Yale
Total	202	22	17	56	41	27	30	24	15	27	10	14
North America:												
British West Indies	2	0	0	1	0	0	1	0	0	0	0	0
Canada	15	1	2	3	3	2	1	1	0	0	0	2
Costa Rica	2	0	0	0	0	1	0	1	0	0	0	0
Cuba	2	0	0	2	0	0	0	0	0	0	0	0
El Salvador	2	0	0	0	0	0	0	0	0	2	0	0
Guatemala	4	1	0	0	1	1	0	0	0	1	0	0
Haiti	4	0	2	0	0	1	0	0	0	0	0	1
Honduras	6	0	0	1	0	0	0	0	0	4	0	1
Mexico	6	0	0	0	0	1	0	1	2	1	1	0
Panama	11	0	0	3	0	2	0	0	0	4	1	1
South America:												
Argentina	3	0	0	0	1	0	0	0	0	0	1	1
Bolivia	7	3	0	0	0	0	0	1	0	3	0	0
Brazil	6	1	1	1	1	0	2	0	0	0	0	0
Chile	2	0	0	1	1	0	0	0	0	0	0	0
Colombia	12	0	1	5	0	2	1	0	1	0	1	1
Ecuador	2	0	0	0	0	0	0	0	0	2	0	0
Paraguay	5	0	0	0	0	2	0	0	0	3	0	0
Peru	10	2	0	1	0	0	1	1	1	4	0	0
Surinam	1	0	0	0	0	1	0	0	0	0	0	0
Uruguay	3	0	0	0	1	0	1	0	0	1	0	0
Venezuela	9	0	0	1	0	2	0	0	4	2	0	0
Europe:												
Belgium	1	0	0	0	1	0	0	0	0	0	0	0
Finland	2	0	0	1	0	0	1	0	0	0	0	0
France	1	0	0	1	0	0	0	0	0	0	0	0
Germany	3	1	0	0	0	0	1	0	0	0	0	1
Greece	2	0	0	0	2	0	0	0	0	0	0	0
Italy	2	0	0	1	0	0	0	0	1	0	0	0
Netherlands	1	0	0	0	0	0	1	0	0	0	0	0
Norway	1	0	0	1	0	0	0	0	0	0	0	0
Spain	1	0	0	0	0	0	0	0	0	0	0	1
Switzerland	1	0	0	1	0	0	0	0	0	0	0	0
United Kingdom:												
England	5	0	0	1	4	0	0	0	0	0	0	0
Ireland	1	0	0	0	0	0	0	0	0	0	0	1
Asia:												
British Malaya	1	0	0	0	1	0	0	0	0	0	0	0
Burma	3	0	0	1	0	0	0	1	0	0	0	1
China	9	2	0	0	3	0	0	2	0	0	2	0
Ceylon	1	0	0	0	0	0	0	1	0	0	0	0
Formosa	1	0	0	0	0	0	0	1	0	0	0	0
India	22	1	0	9	8	0	1	2	0	0	1	0
Indonesia	7	0	0	1	1	0	0	0	0	0	5	0
Iran	7	0	0	1	0	2	0	2	1	0	0	1
Iraq	1	0	0	0	0	0	0	1	0	0	0	0
Israel	6	1	1	2	2	0	0	0	0	0	0	0
Japan	4	0	0	2	1	0	0	0	0	0	1	0
Jordan	1	0	0	0	0	1	0	0	0	0	0	0
Korea	10	1	0	0	1	0	5	1	1	0	0	1
Kuwait	1	0	0	1	0	0	0	0	0	0	0	0
Lebanon	4	1	0	0	1	0	1	1	0	0	0	0
Nepal	1	0	0	0	1	0	0	0	0	0	0	0
Pakistan	3	1	0	2	0	0	0	0	0	0	0	0
Philippines	18	0	1	1	4	5	4	0	3	0	0	0
Saudi Arabia	4	0	0	3	0	0	0	0	0	0	1	0
Taiwan	9	0	0	0	0	3	5	0	0	0	0	1
Thailand	17	1	0	5	1	0	1	4	0	0	5	0
Turkey	4	1	2	0	0	0	1	0	0	0	0	0
Vietnam	2	0	0	0	0	1	0	1	0	0	0	0
Africa:												
Belgian Congo	1	0	1	0	0	0	0	0	0	0	0	0
Egypt	13	2	4	3	0	0	1	2	1	0	0	0
Ethiopia	1	0	0	0	1	0	0	0	0	0	0	0
Liberia	1	0	1	0	0	0	0	0	0	0	0	0
Libya	1	1	0	0	0	0	0	0	0	0	0	0
Portuguese East Africa	1	0	1	0	0	0	0	0	0	0	0	0
Tanganyika	1	0	0	0	0	0	1	0	0	0	0	0
Oceania:												
Australia	2	1	0	0	1	0	0	0	0	0	0	0

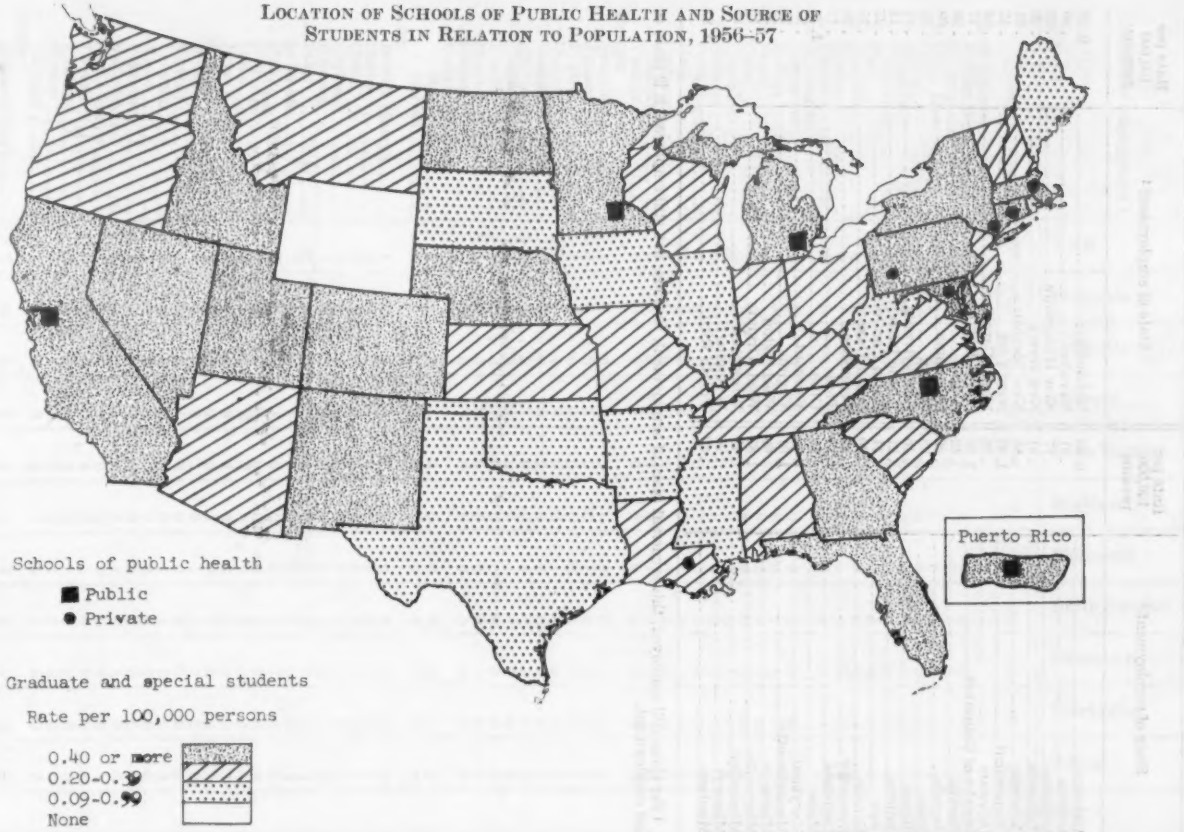
[1] For those still employed this is current place of employment; for those not still employed, it is place of last employment.

Graduate and special students in schools of public health in relation to population, 1956–57

State of employment [1]	Rate per 100,000 persons	State of employment [1]	Rate per 100,000 persons
Alabama	0.20	Nebraska	0.58
Arizona	.31	Nevada	.46
Arkansas	.17	New Hampshire	.36
California	.61	New Jersey	.20
Colorado	.86	New Mexico	.91
Connecticut	1.03	New York	.42
Delaware	.26	North Carolina	.64
District of Columbia	3.37	North Dakota	.47
Florida	.42	Ohio	.26
Georgia	.40	Oklahoma	.09
Idaho	.83	Oregon	.36
Illinois	.16	Pennsylvania	.42
Indiana	.21	Rhode Island	.12
Iowa	.11	South Carolina	.22
Kansas	.30	South Dakota	.15
Kentucky	.34	Tennessee	.26
Louisiana	.34	Texas	.17
Maine	.11	Utah	1.29
Maryland	1.43	Vermont	.27
Massachusetts	1.01	Virginia	.26
Michigan	.68	Washington	.28
Minnesota	1.83	West Virginia	.15
Mississippi	.19	Wisconsin	.22
Missouri	.24	Wyoming	0
Montana	.32	Puerto Rico	1.82

[1] For those still employed, this is current place of employment: for those not still employed, it is place of last employment.

LOCATION OF SCHOOLS OF PUBLIC HEALTH AND SOURCE OF STUDENTS IN RELATION TO POPULATION, 1956–57



12. Smillie, Wilson G. Summary Report on Accredited Schools of Public Health, 1955–56. American Public Health Association, Committee on Professional Education.

Smillie, Wilson G. Summary Report on Accredited Schools of Public Health, 1954–55. American Public Health Association, Committee on Professional Education.

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Winslow, C.-E. A. The Accreditation of North American Schools of Public Health. American Public Health Association, 1953.

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Rosenfeld, Leonard S., Gooch, Marjorie, and Levine, Oscar. Report on Schools of Public Health in the United States. Public Health Service Publication No. 276. United States Government Printing Office, Washington, 1953.

Special survey of schools of public health made by the Association of Schools of Public Health, February 1957. Data reproduced below compiled by Division of Public Health Methods, Public Health Service.

Trend in advanced degrees granted, schools of public health, 1949-57

Year	Advanced degrees granted [1]	
	Doctoral [2]	Masters [3]
1949 to 1950	24	432
1950 to 1951	20	520
1951 to 1952	18	578
1952 to 1953	25	566
1953 to 1954	(4)	(4)
1954 to 1955	28	542
1955 to 1956	28	570
1956 to 1957 (estimated)	40	656

[1] Figures for 1950–53 are for universities with schools of public health and may include some students enrolled in other parts of the university, e. g., engineering.
[2] Includes Dr. P. H., Ph. D., Sc. D., and other doctoral degrees.
[3] Includes M. P. H., M. S., and other masters' degrees.
[4] Not available.

13, 14. Unpublished studies, Association of Schools of Public Health.

15, 16. Haldeman, Jack C., Cheney, Bess A., and Flook, Evelyn. Staffing of State and Local Health Departments, 1951. Public Health Service Publication No. 279. United States Government Printing Office, Washington, 1953.

Greve, Clifford H., and Campbell, Josephine R. Organization and Staffing for Full-Time Local Health Services as of December 31, 1953. Public Health Service Publication No. 441. United States Government Printing Office, Washington.

Rosenfeld, Leonard S., Gooch, Marjorie, and Levine, Oscar. Report on Schools of Public Health in the United

States. Public Health Service Publication No. 276. United States Government Printing Office, Washington, 1953.

Directory of Full-Time Local Health Units. Public Health Service Publication No. 118, annual revisions 1951 through 1956. United States Government Printing Office, Washington. Data reproduced below compiled by Division of Public Health Methods, Public Health Service.

Full-time local health officer positions and vacancies, 1951–56

Year	Positions	Vacancies	Percent of positions vacant
1951	1,293	286	22
1952	1,333	337	25
1953	1,365	380	28
1954	1,434	454	32
1955	1,442	427	30
1956	1,446	436	30

17. Material prepared by Division of General Health Services, Public Health Service, March 22, 1956. Table reproduced below.

Full-time professional public health personnel in State and local health departments and number having and needing public health training, 1955

Profession	Number employed	Number with at least 1 year of public health training [1]	Needing but not having 1 year of public health training [1]
Total	25,906	8,247	9,220
Physicians	2,065	799	481
Public health nurses	14,052	5,930	6,366
Dentists	378	103	69
Engineers	1,032	316	453
Professional sanitarians	4,816	371	934
Health educators	490	233	167
Professional laboratory personnel	1,737	175	438
All other [2]	1,336	320	312

[1] Estimated from 10-State sample.
[2] Includes veterinarians, medical social workers, nutritionists, statisticians, and analysts.

18. Special survey of schools of public health made by the Association of Schools of Public Health, February 1957. Data compiled by Division of Public Health Methods, Public Health Service.

Information provided by Washington office, Pan-American Sanitary Bureau; and Education and Training Branch, Division of International Health, Public Health Service. Statement reproduced below prepared by Division of Public Health Methods, Public Health Service.

Programs Providing Aid for Training of Foreign Students at Schools of Public Health

I. WORLD HEALTH ORGANIZATION AND PAN-AMERICAN SANITARY BUREAU

As one means of helping countries throughout the world to raise the level of health among their people, the World Health Organization administers a fellowship program that provides opportunities for (*a*) training and study in health matters not available in the candidate's own country, and (*b*) the international exchange of scientific knowledge and techniques relating to health. Fellowships may be awarded for attendance at courses, especially those leading to a postgraduate certificate, degree, or diploma, among other purposes. Persons receiving fellowships must be nationals of members or associate members of WHO, or nationals of trust and other territories for whose international relations WHO members are responsible, or which are administered by international authorities established by the United Nations. To each person awarded a fellowship, WHO pays a stipend to cover the costs of room, board, and incidental expenses. WHO pays also tuition fees, a book grant, and certain travel and medical expenses.

Fellowships awarded by the Pan American Sanitary Bureau, which serves as WHO regional office for the Americas, are similar to those made available by WHO, except that PASB fellows must be nationals of the republics making up the Organization of American States.

In recent years some 60 to 70 students annually have attended the schools of public health under fellowships from the World Health Organization or the Pan American Sanitary Bureau.

II. INTERNATIONAL COOPERATION ADMINISTRATION

The International Cooperation Administration, as part of its technical assistance program, provides for training in health and sanitation of selected foreign persons. The trainees, who include doctors, nurses, sanitary engineers, and other types of health personnel, are selected by the United States overseas missions and the government of the cooperating country, and are trained for specific positions in current or proposed technical assistance programs in health. Training may be provided in a school of public health, a school of nursing or engineering, a hospital, a laboratory, or another training center, depending upon the qualifications and objectives of the trainee. For each trainee the International Cooperation Administration pays the costs of tuition and fees, subsistence, books, and other training expenses. The traineeship program, which is administered for ICA by the Division of International Health of the Public Health Service, in 1956–57 arranged for long-term training of a total of 282 persons, of whom 134 were placed at schools of public health. This does not include persons receiving short-term training (under 6 months) in hospitals, professional schools, laboratories, health departments, and sanitation facilities.

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19. Information obtained from officials of United States Public Health Service and schools of public health.

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20. Special survey of schools of public health made by the Association of Schools of Public Health, February 1957. Data compiled by Division of Public Health Methods, Public Health Service.

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21. Smillie, Wilson G. Summary Report on Accredited Schools of Public Health 1955–56. American Public Health Association, Committee on Professional Education.

Smillie, Wilson G. Summary Report on Accredited Schools of Public Health 1954–55. American Public Health Association, Committee on Professional Education.

Summary Report on Accredited Schools of Public Health 1953–54. American Public Health Association, Committee on Professional Education.

Summary Report on Accredited Schools of Public Health 1952–53. American Public Health Association, Committee on Professional Education.

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22. Special survey of schools of public health made by the Association of Schools of Public Health, February 1957. Data compiled by Division of Public Health Methods, Public Health Service.

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23. Special survey of schools of public health made by the Association of Schools of Public Health, February 1957. Data reproduced below compiled by Division of Public Health Methods, Public Health Service.

Basic teaching budgets of schools of public health, 1955–56

Total expenditure and source of income	All schools	Control of school	
		Public	Private
Total expenditures	$4,562,980	$2,144,415	$2,418,565
Income—percent	100	100	100
Tuition	11	9	13
Endowment	22	1	41
Gifts and grants	24	19	28
Government: State and State university	32	69	
General university funds	6		11
Other	2	2	2
Deficit	3		5

24–27. Special survey of schools of public health made by the Association of Schools of Public Health, February 1957. Data compiled by Division of Public Health Methods, Public Health Service.

28. Information obtained from National Cancer Institute; National Heart Institute; National Institute of Mental Health; Traineeship Unit, Division of General Health Services, Bureau of State Services, Public Health Service; Division of Training, Office of Vocational Rehabilitation; and International Cooperation Administration. Data reproduced below compiled by Division of Public Health Methods, Public Health Service.

Federal grants to schools of public health for teaching purposes (excluding amounts for stipends to students), fiscal year 1957

School	Total	Public Health Service			Office of Vocational Rehabilitation	International Cooperation Administration
		National Institutes of Health		Air pollution control		
		Epidemiology and biometry	Other			
All schools	$536,874	$124,545	$247,498	$56,529	$8,302	[1] $100,000
California	25,500	10,500	15,000			
Columbia	41,561	6,647	34,914			
Harvard	66,997	8,700	33,586	16,409	8,302	
Johns Hopkins	21,655	8,153	13,502			
Michigan	41,992	1,992	15,000	25,000		
Minnesota	51,274	8,639	42,635			
North Carolina	57,363	9,464	32,779	15,120		
Pittsburgh	71,037	45,364	25,673			
Puerto Rico	[1] 100,000					[1] 100,000
Tulane	15,454	15,454				
Yale	44,041	9,632	34,409			

[1] Maximum Federal reimbursement allowed for costs of teaching up to 38 Spanish-speaking ICA trainees. An estimated 15 to 20 percent of this represents payment in lieu of tuition.

29. Special survey of schools of public health made by the Association of Schools of Public Health, February 1957. Data compiled by Division of Public Health Methods, Public Health Service.

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30. Catalogs of schools of public health.

Directory of Approved Internships and Residencies, Journal of the American Medical Association 162: 410, Sept. 22, 1956; 159: 474–475, Oct. 1, 1955. Data reproduced below.

American Board of Preventive Medicine

General eligibility requirements for examination

1. Good moral character and high ethical and professional standing.
2. Graduation from a medical school in the United States or Canada approved by the Council on Medical Education and Hospitals of the American Medical Association, or from a foreign medical school satisfactory to the board.
3. An internship of at least 1 year in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association or in a foreign hospital satisfactory to the board.
4. Licensure to practice medicine in the United States or in the Dominion of Canada.

SPECIAL REQUIREMENTS IN AVIATION MEDICINE

1. Successful completion (after internship) of at least 2 academic years of graduate study in preventive medicine and aviation medicine, 1 year of which graduate study shall be in a school of public health accredited for the purpose of such graduate study by the American Public Health Association and 1 year of which shall be in a school of aviation medicine accredited for the purpose of such graduate study by the Council on Medical Education and Hospitals of the American Medical Association; or training and study deemed by the board to be substantially equivalent to such graduate study.

2. Residency[1] (after internship) of at least 1 year of supervised experience in aviation medical practice, which included planned instruction, observation, and active participation in a comprehensive, organized program of aviation medicine.

3. Supervised practice of aviation medicine (after internship) of not less than 1 year, in addition to 1 and 2 above, of special training in or teaching or practice of aviation medicine.

4. A period (after internship) of not less than 2 years, in addition to 1, 2, and 3 above, of special training, teaching, research, or practice of aviation medicine.

5. Limitation of practice to full-time teaching, research, or practice of aviation medicine.

6. Regular and frequent participation in aerial flight.

Credit for training and experience in public health or aviation medicine while in military service will be considered on an individual basis, depending on the type of service.

SPECIAL REQUIREMENTS IN OCCUPATIONAL MEDICINE

1. Successful completion (after internship) of at least 2 academic years of graduate study in preventive and occupational medicine in a school of medicine or a school of public health. The schools in which such instruction is provided shall be accredited for graduate study by the Council on Medical Education and Hospitals of the American Medical Association or the American Public Health Association in accordance with the jurisdictions of these accrediting agencies; or training and study deemed by the board to be substantially equivalent to such graduate study.

2. Completion (after internship) of not less than 1 year, in addition to 1 above, of supervised experience (residency) in occupational medical practice in an industrial or medical organization. This residency shall provide planned instruction, observation and active participation in a comprehensive program of occupational medicine; or a comparable period of experience deemed by the board to be substantially equivalent to such year of supervised experience.

3. A period (after internship) of not less than 3 years, in addition to 1 and 2 above, of special training in or teaching or practice of occupational medicine.

4. Limitation of practice to full-time teaching, research, or practice of occupational medicine.

[1] Approval of residency training is in the process of development. Until such time as an adequate program of residency is developed, field training will be evaluated by the board on an individual basis. Information as to approved residencies may be obtained from the Council on Medical Education and Hospitals or from the secretary of the board.

FEES

The fee for application and examination is $90, payable as indicated below; additional fees are payable for reexamination as set forth below, but no additional fee is payable for the issuance of a certificate.

Application fee, $15. No application will be considered unless accompanied by the application fee. The application fee is not refundable.

Examination fee, $75. This fee is payable when the candidate is notified of acceptance for examination, and, if paid prior thereto, is not refundable after such notification has been given.

No member of the board has the authority to give informal opinions as to the eligibility of the candidates. The determination of eligibility will be made only by the board after receiving full application information. Each candidate must comply with board regulations in effect at the time the examination is taken, and also those in effect at the time the certificate (if any) is issued, regardless of when the original application was filed. An applicant declared ineligible for admission to examination may refile or reopen his application on the basis of new or additional information within 2 years of the filing date of his original application without payment of an additional application fee.

Applicants who are declared eligible for examination but who fail to submit to examination within 3 years of the date of the filing of the application are required to file a new application and to pay a new application fee.

EXAMINATIONS

Examinations will be held from time to time and in various places depending upon need as indicated by applications received. Examinations will ordinarily be held in connection with the annual meetings of one or more of the sponsoring societies and may also be held at other times and at other places so located geographically as to minimize travel for the applicants.

The examination consists of three parts: Part 1 consists of a comprehensive written examination designed to test the knowledge of the applicant in the general field of preventive medicine. Part 2 is a comprehensive written examination designed to test the knowledge of the applicant in the special field in which he requests certification. Part 3 is an oral or practical examination that will usually be held at the completion of the written examinations. An endeavor will be made to adapt the details of the oral or practical examination of each candidate's experience and practice. The examiners will report on each candidate to the assembled board, by which the results of the examination will be considered.

REEXAMINATION

Candidates failing the first examination taken may, upon timely request, be admitted to a second examination within 18 months following the examination failed, upon payment of an additional fee of $15. If the candidate fails the second examination, a period of 11 months must elapse before admission to a third examination. A fee of $25 is

required for admission to the third examination. Candidates failing three examinations will not be admitted to any subsequent examinations unless the board so directs.

CERTIFICATION

On satisfactory completion of the examination and proof to the satisfaction of the board that the applicant is eligible for certification, a certificate will be issued to the effect that the person named has been found to be possessed of special knowledge in the field specified in his application. The certificate will be signed by officers of the board and will have its seal affixed. Each certificate remains the property of the board, but the person to whom it is issued shall be entitled to its possession unless and until it is revoked. Any certificate issued by the board may be revoked if evidence, satisfactory to the board is presented that the applicant was not eligible to receive it at the time of examination or issuance, or that he misstated, misrepresented or concealed any pertinent fact, or that his license to practice medicine has been suspended or revoked, or that he has ceased to be engaged in the teaching or practice of the specialty in which he has been certified. The issuance of a certificate to any person does not constitute such a person a member of the board.

Changes in Above Requirements, 1956

SPECIAL REQUIREMENTS IN PUBLIC HEALTH

1. Successful completion (after internship) of at least 1 academic year of graduate study leading to the degree of master of public health or an equivalent degree or diploma; or training or study deemed by the board to be substantially equivalent to such graduate study.
2. Residency (after internship) of at least 2 years of field experience in general public health practice, which included planned instruction, observation, and active participation in a comprehensive, organized public-health program, 1 year of which may be an approved clinical residency in a field directly related to public health.
3. A period (after internship) of not less than 3 years, in addition to 1 and 2 above, of special training in or teaching or practice of public health.
4. Limitation of practice to full-time teaching or practice of public health as a specialty.

31. Special survey of schools of public health made by the Association of Schools of Public Health, February 1957. Data compiled by Division of Public Health Methods, Public Health Service.

Data reproduced below compiled by Division of Public Health Methods, Public Health Service from latest catalog for each school of public health.

Tuition per academic year for graduate and special students in each school of public health, 1956–57

School	Tuition [1]
California	$84– $384
Columbia	900
Harvard	1, 150
Johns Hopkins	1, 200
Michigan	330– 660
Minnesota	138– 405
North Carolina	500– 750
Pittsburgh	700
Puerto Rico	150– 500
Tulane	900
Yale	650

[1] For the publicly supported schools the first figure is charged residents, the second nonresidents.

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32. Special survey of schools of public health made by the Association of Schools of Public Health, February 1957. Data reproduced below compiled by Division of Public Health Methods, Public Health Service.

Sources of support of graduate and special students in schools of public health, 1956–57

Source of support	Number of students	Percent
All sources	1,159	100
Students	253	23
Universities	84	8
Federal agencies:		
Public Health Service	229	21
International Cooperation Administration	121	11
Veterans' Administration	55	5
Armed Forces	39	3
Atomic Energy Commission	7	1
All other	12	1
State and Territorial health departments	157	14
World Health Organization	61	6
Foreign governments	14	1
Foundations and voluntary agencies	52	5
Industry	10	1
Other	1	(1)
Not reported	64	

[1] Less than 0.5 percent.

Sources of support of graduate and special students in each school of public health, 1956–

Source of support	California	Columbia	Harvard	Johns Hopkins	Michigan	Minnesota	North Carolina	Pittsburgh	Puerto Rico	Tulane	Yale
All sources	116	123	136	125	154	155	109	79	60	53	49
Students	40	21	27	4	35	37	27	20	14	2	26
Universities	11	3	6	44	0	0	0	9	0	10	1
Federal agencies:											
Public Health Service	29	16	20	20	40	40	28	16	3	9	8
International Cooperation Administration	13	5	14	14	9	20	9	7	16	11	3
Veterans' Administration	0	19	3	3	3	21	0	0	5	1	0
Armed Forces	1	0	11	12	2	5	3	3	0	2	0
Atomic Energy Commission	0	0	3	0	0	0	0	4	0	0	0
All other	0	1	8	0	1	0	0	0	0	0	2
State and Territorial health departments	18	17	13	7	29	17	25	6	12	10	3
World Health Organization	3	2	12	1	9	7	5	2	9	4	3
Foreign governments	1	1	3	2	2	1	0	4	0	0	0
Foundations and voluntary agencies	0	5	13	6	5	5	12	0	0	4	2
Industry	0	1	3	0	3	1	0	2	0	0	0
All other	0	1	0	0	0	0	0	0	0	0	0
Not reported	0	31	0	8	16	1	0	6	1	0	1

33. Material compiled by Division of Public Health Methods, Public Health Service. Description of programs below.

Federal Programs Providing Aid for Students at Schools of Public Health

I. DIRECT FEDERAL PROGRAMS

Among the Federal agencies operating direct programs for aid to students in schools of public health are the Public Health Service, the Department of Defense, the Atomic Energy Commission, the International Cooperation Administration, and the Office of Vocational Rehabilitation. The following summary covers only grants made primarily for traineeship purposes. Some grants made primarily for research purposes (e. g., research grants and fellowships of the National Institutes of Health) provide incidentally some support for students. Grants for teaching purposes are described in question 28.

Public Health Service

(*a*) *Public Health traineeship program.*—Under title I of the Health Amendments Act of 1956, the Public Health Service has inaugurated a 3-year program of Federal traineeships for graduate or specialized public-health training for professional health personnel such as physicians, nurses, sanitary engineers, nutritionists, medical social workers, dentists, health educators, veterinarians, sanitarians, and others whose professional skills are required in modern public-health practice. The individual trainee may select the educational institution of his choice which offers a nationally recognized graduate or specialized public health training program in his professional field; this includes, among other institutions, the 11 accredited schools of public health. Financed in the first year by an appropriation of $1 million, the traineeships are available both through grants to schools and also (except for nurses) directly from the Public Health Service. They provide for tuition and fees, a stipend for living expenses, and a travel allowance. In the first year of the program (1956–57), as of January 31, 1957, traineeships had been awarded to a total of 176 persons studying in schools of public health, as well as to more than 150 students at schools not affiliated with schools of public health (nursing schools, schools of engineering, etc.). Tuition and fees for the 176 students totaled $95,577, as shown below:

Estimated amounts for tuition and fees for students at schools of public health appointed as Public Health Service trainees under title I of the Health Amendments Act of 1956: academic year 1956–57

Method of appointment	Number	Amount
Total	176	$95,577
Appointed by schools of public health	48	35,682
Appointed by schools of nursing affiliated with schools of public health	51	16,023
Appointed by Public Health Service direct	77	43,872

(Information obtained from Traineeship Unit, Division of General Health Services, Bureau of State Services, Public Health Service.)

(*b*) *Professional nurse traineeship program.*—Title II of the Health Amendments Act of 1956 authorizes a 3-year program for the training

of professional nurses to teach in the various fields of nurse training or to serve in an administrative or supervisory capacity. Under this program, traineeships are awarded only through grants to the institutions providing the training. Among the positions for which training may be provided are those as supervisor or administrator of nursing services in a public-health agency, and as teacher of public-health nursing. Although most of the institutions providing traineeships are schools of nursing, all of the schools of public health, except Tulane, also are included in the program. Traineeships, like those provided under the public health traineeship program, include tuition and fees, a stipend for living expenses, and some travel allowance. For 1956–57, a total of 26 traineeships were awarded through schools of public health. (Information obtained from Division of Nursing Resources, Public Health Service.)

(c) *National Institutes of Health traineeships and training grants.*—To encourage and support training in the scientific fields related to health problems, the National Institutes of Health of the Public Health Service provide for assistance to students both through traineeships to individuals and also through training grants to institutions. Traineeships provide directly for stipends, while training grants generally may be used by the schools for stipends as well as for teaching costs.

For fiscal year 1957, 3 Institutes (Heart, Mental Health, and Cancer) have awarded, either directly to students or through the schools, a total of $185,293 in stipends for students at the schools of public health. Of this total, $131,031 was for students receiving broad training in epidemiology and biostatistics under funds made available by the National Heart Institute and the National Cancer Institute. (Information obtained from Division of Research Grants, National Institutes of Health.)

(d) *Air pollution control training grants.*—As part of its program of aid for training of personnel engaged in the prevention and abatement of community air pollution, the Public Health Service makes available traineeships both directly to individuals and indirectly through State and local air pollution control agencies. Schools of public health are among the institutions at which training may be furnished. (Information obtained from Bureau of State Services, Public Health Service.)

(e) *Training outside the service for Public Health Service personnel.*—To meet its own program needs, the Public Health Service each year authorizes training outside the Service for a limited number of Public Health Service employees. Regular and Reserve Corps officers of the Public Health Service Commissioned Corps are eligible to receive extra-mural training necessary to meet program activity and career development needs of the Service. Civil Service personnel, subject to certain legal and budgetary restrictions, may be sent for outside training, if such training will further research, investigations, demonstrations, or studies relating to the causes, diagnosis, treatment, control, and prevention of physical and mental diseases and impairments of man. In addition to continuing the salaries of persons trained, the Public Health Service pays tuition and fees, travel costs, and an allowance for textbooks and equipment. The number of persons sent to schools of public health under this program each year is approximately 20. (Information obtained from Division of Personnel, Public Health Service.)

Department of Defense

Each of the three branches of the armed services to meet its requirements for public-health specialists sends selected officers for training at civilian schools of public health. In general, such training is confined to career-minded officers. Physicians are sent to the schools by all of the services, although the Army hopes to meet its physician training needs increasingly through its own course in preventive medicine at Walter Reed Hospital. Other types of personnel assigned for training by one or more of the services include dentists, nurses, veterinarians, sanitation personnel, hospital administrators, and scientists. An officer sent for training at one of the schools receives his regular pay and allowances, tuition and fees, and various special allowances.

(Information obtained from Education and Training Division, Office of the Surgeon General, Department of the Army; Training Branch, Bureau of Medicine and Surgery, Department of the Navy; and Medical Education Section, Office of the Surgeon General, Department of the Air Force.)

Atomic Energy Commission

The Atomic Energy Commission provides special fellowships in industrial hygiene for graduate training at Harvard University's School of Public Health and the University of Pittsburgh's Graduate School of Public Health. The special fellowships provide for 9 months of training leading to a master's degree. They have been available since 1953–54 and there have been 21 fellows from 159 applicants.

(Information obtained from Atomic Energy Commission.)

International Cooperation Administration

The traineeship program of the International Cooperation Administration is described in the source note for question 18 above.

Office of Vocational Rehabilitation

Under the Vocational Rehabilitation Amendment of 1954 (Public Law 565, 83d Cong.), the Office of Vocational Rehabilitation provides grants to institutions and agencies to increase the number and competency of professional rehabilitation personnel, through traineeship grants as well as grants for teaching purposes. The Harvard University School of Public Health currently has a grant of $28,102 for the training of medical social workers for practice in rehabilitation programs. Of this amount, $19,800 is for traineeships. (Information obtained from Division of Training, Office of Vocational Rehabilitation.)

II. GRANT-IN-AID PROGRAMS

Federal grants to States for health purposes may be used by the States to provide advanced training in public health for professional persons whose work is related to these programs and to improve the quality of care in the programs. Expenditures under most of the grants must be matched at least in part by State or local funds, although the extent of matching required varies from program to program.

Public Health Service

Since the enactment of title VI of the Federal Social Security Act in 1936, a part of the Federal grants made available each year by the Public Health Service for the extension of State and local public health services has been used for personnel training. The training programs afford the trainees opportunities to extend their technical and scientific knowledge so they can be more effective in the positions to which they are assigned. Among the institutions providing the training have been the schools of public health.

The selection of personnel for sponsored training from the professional or technically trained ranks is left to the discretion of the State health officer. Types of persons trained include: Physicians, dentists, nurses, laboratory workers, sanitation personnel, and other persons who are, or are to be, employed in official State, county, or local health programs. Also, this group includes some who are not employed by an official health agency but who will, as a result of the training, render services to public health programs.

For expenditures under the grants for general health purposes and for three special-disease control programs (cancer, heart disease, and mental health), State matching is required in the ratio of $1 in State and local funds to $2 in Federal grant funds. The matching requirement for tuberculosis control grants is one to one, while no matching is required for expenditures out of venereal disease control grants.

(United States Office of Education, Federal Funds for Education, 1954–55 and 1955–56. Washington, D. C., Government Printing Office, 1956; and United States Department of Health, Education, and Welfare, Office of Program Analysis. Formulas Used in the Grant-in-Aid Programs of the Department of Health, Education, and Welfare. June 1956.)

Children's Bureau

Advanced training in public health may be provided out of Children's Bureau grants to the States for extension and improvement of maternal and child health services and services for crippled children. Although much of the training under these programs takes the form of group training, institutes, refresher courses, and short in-service programs, some of it has been in more formal training for longer periods, including training in a school of public health.

The largest expenditures for training under these programs are made from grant funds reserved for special service and training projects of national or regional significance. Special project funds need not be matched by State and local funds. In addition, certain official maternal and child health and crippled children's agencies use a portion of their basic grant funds for training of physicians and other professional personnel. These basic funds must be matched dollar for dollar.

(United States Department of Health, Education, and Welfare. Office of Program Analysis. Formulas used in the grant-in-aid programs of the Department of Health, Education, and Welfare. June 1956; and information obtained from the Children's Bureau.)

34-40. Special survey of schools of public health made by the Association of Schools of Public Health, February 1957. Data reproduced below compiled by Division of Public Health Methods, Public Health Service.

Construction needs of schools of public health, February 1957

School	Type of construction	Estimated cost		
		Total	Teaching	Research
All schools		$24,675,000	$15,650,000	$9,025,000
California	New construction and expansion of existing facilities.	1,000,000	500,000	500,000
Columbia	Expansion of school, and purchase and rehabilitation of research unit.	1,000,000	575,000	425,000
Harvard	New wing and rehabilitation of existing facilities.	4,300,000	2,150,000	2,150,000
Johns Hopkins	Two annexes to present building	5,000,000	2,500,000	2,500,000
Michigan	Expansion of school	4,500,000	4,500,000	0
Minnesota	New biomedical library and new laboratory of physiological hygiene.	2,250,000	750,000	1,500,000
North Carolina	New building	2,000,000	1,500,000	500,000
Pittsburgh				
Puerto Rico	New building	1,000,000	650,000	350,000
Tulane	New construction and expansion of existing facilities.	375,000	375,000	0
Yale	New construction and expansion of existing facilities.	3,250,000	2,150,000	1,100,000

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